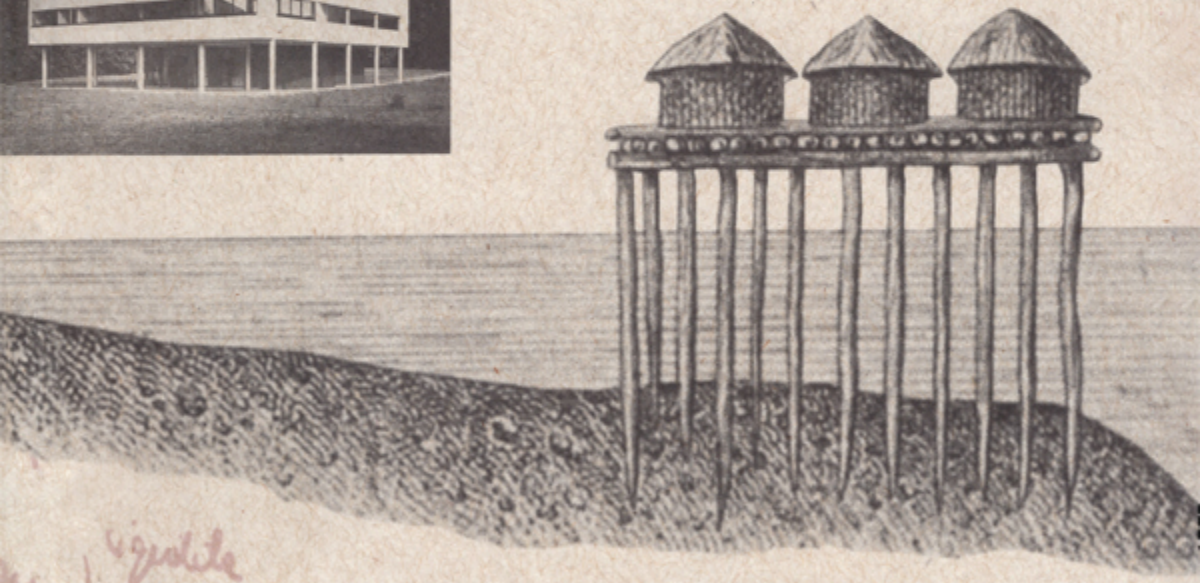
Le Corbusier, the Noble Savage

Toward an Archaeology of Modernism



Adolf Max Vogt

translated by Radka Donnell

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Toward an Archaeology of Modernism

Adolf Max Vogt

translated by Radka Donnell

The MIT Press
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Preface

The Suisse-Romande pedagogic magazine *L'Educateur* published in its issue number 4 of 1890 a new educational program on the subject of history at the elementary schools. The author, Paul Jacquet, a teacher from La Chaux-de-Fonds and the magazine's secretary, proposed to include in the curriculum of the canton of Neuchâtel the then freshly discovered phase of Swiss prehistory. These discoveries, which immediately produced an enormous European echo, concerned the so-called lake-dwellers (Culture Lacustre or Culture des Palafittes) from the Lake of Geneva eastward to the Lake of Zurich and the Lake of Constance. The findings changed the picture of prehistory and early history so profoundly that Paul Jacquet wanted to preserve in the curriculum the freshly discovered earliest horizons of human culture.

Charles-Edouard Jeanneret, who later called himself Le Corbusier (and to whom we will refer by the signet LC that he chose himself and used innumerable times), was born on October 6, 1887, in La Chaux-de-Fonds. Thus he was just three years old when the government of the canton of Neuchâtel responded to Jacquet and completed the suggested supplementation of the curriculum, astonishingly quickly, in the same year of 1890.

When three years later little LC finishes the Froebel kindergarten and goes into the first grade, he belongs to the pioneer class, the first to be taught the new material. But why were the youngest grades confronted with the topic, at the urging of Paul Jacquet and a large number of other teachers? This is hard to understand today, but at that time it evidently seemed appropriate. Today archaeologists like Christin Osterwalder-Maier understandably plead for the contrary, for assigning the topic of prehistory to more mature students.

Such matters will occupy us in chapters 28 and 29. But in February 1991, when I was giving a paper on the topic of LC at the annual conference

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of the Association of Collegiate Schools of Architecture in Cambridge, Massachusetts, I knew nothing about such details, and if I had I would have considered them odd or abstruse. Yet I saddled myself with the difficult job of research by my rather offbeat choice of theme: "LC and Swiss Lake Dwellings of the Neolithic Age." Only after I delivered my paper did it dawn on me: I had started to investigate and to ask questions at the opposite end of what LC represented or had seemed to represent until then. Instead of further researching axiomatically the topic of progressivity, I had started to address the archaeology of this work. Archaeology of a great European avant-gardist—is there such a thing? Can it be? In my short and sketchy lecture in the Piper Auditorium I had proposed the thesis that even the avant-garde has its archaeology or can have one. With the present book I should like to unfold my thesis and flesh it out. If Stanford Anderson and Francesco Passanti and also Helen Lipstadt, Marc Angelil, and Spiro Pollalis had not encouraged me in a friendly way, nothing would have come of my attempt to read LC's vector in the opposite direction.

If one is asked what distinguishes LC from the other avant-gardists of his generation—I am thinking, for instance, of Gropius and Mies van der Rohe, André Lurçat and Robert Mallet-Stevens, Hans Schmidt and Mart Stam, Hugo Häring and Alvar Aalto, and also, of course, Frank Lloyd Wright and the engineer Robert Maillart—one possible answer might be that, while LC's house is white and cubical and "cool" like the houses of the other avant-gardists, *only he* insisted to the end of his life on lifting his house if possible completely on stilts (pilotis) and thus making it a *boîte en l'air* (box up in the air). This is what I explore here.

Not unexpectedly, I was hampered by all sorts of obstacles set in my path by LC himself, who, I might add, is a great master of covering his tracks to a horrifying degree. Had there been moments when LC felt some misgivings about his tirelessly celebrating and parading before the amazed devotees of modernism what was most ancient on his cultural horizon as if it were the latest and newest? Mightn't this be one of the reasons for his obstinately covering his tracks?

In other words, the regional history I present here shows that, thanks to the general enthusiasm of that time for lake dwellers, the young boy was led to accept as absolutely proven that people at the beginning of culture

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had lived above water on pile-work. Even though the present state of archaeology relativizes this view, what was held to be scientifically valid at LC's time in school remains of interest for us.

Regional history? A sensitive issue. In contrast to the group of scholars who investigated the creative development of the artist in his early works (Patricia Sekler, H. Allan Brooks, Francesco Passanti, Stanislaus von Moos, Sambal Oelek, Marc Emery, Jacques Gubler, Paul V. Turner, and, for LC's younger years above all, Marc Solitaire and Giuliano Gresleri), I wanted to go far beyond the years of LC's apprenticeship, higher studies, and early artistic accomplishments, back to his boyhood and, if possible, to his earliest childhood. My central question was, *what imprinted itself on the little boy, on young Jeanneret while he was still defenseless?*

LC's mother has been discussed almost to the total exclusion of his father. But what was *he* like? What educational concepts guided LC's kindergarten teacher at that time (Marc Solitaire's study on this subject is important for me; I expand on it); what educational concept guided his elementary school teachers? In what kind of region was he growing up? It certainly was a lonely borderland between Switzerland and France, at an altitude of 1,000 meters. Yet at that period, around 1900, La Chaux-de-Fonds was nothing less than the world capital of watch production. Its high-tech concentration could be compared with that of Chicago or Detroit, but high up in the snow-covered mountains, a mixture of provincial seclusion and cosmopolitan, up-to-date professionalism nothing short of the miraculous.

Add to that the larger framework of LC's youth. Western Switzerland, the so-called Romandie, had the specific culture of a French borderland that for us Swiss Germans is an object of admiration as something highly spirited. This region between the high Alps of Jura and Valais, between the Lake of Geneva, the Lake of Neuchâtel, and the Lake of Bienne, belongs to the small number of European landscapes that have become famous as *paysages parlantes.* A certain portion of the work of young LC has to be seen as an *architecture parlante* for the *paysages parlantes* of these lakes so dear to his heart. One might call these sites "celebrated landscapes," and their most important eulogist was Jean-Jacques Rousseau. His voice was one that LC was intimately familiar with from his earliest childhood and one that he never ceased to resort to, as the list of his later book acquisitions conclusively proves.

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The risk of succumbing to the dubious or narrow-minded aspect of regional history can best be mastered by undertaking a parallel study of the history of exoticism. For the student LC, the central notion of the exotic was embodied by a far-away thrice-named city: Byzantium—Constantinople—Istanbul. This was the destination of his trip to the Orient with his friend Klipstein in 1911. They stayed fifty-three days on the Bosporus, far longer than the time they spent on Mount Athos, in Athens, or in Rome. Sometimes I treat these fifty-three days as having the same importance as the thirty years of LC's youth in the Jura. For if the totally foreign, half seemingly barbaric and half dazzling in its strangeness, captivates one and engrosses one deeply, a single day of travel can mean as much as a series of months at home.

Perhaps among the readers of this book there are some who knew and experienced LC personally who might disapprove of my refusal to fully spell out his pseudonym. They might consider the use of the initials to be solely the privilege of the Master himself, something a historian should leave alone. But those who note how emphatically his father, Edouard Jeanneret-Perret, prided himself on the abbreviation of his own name, J^{t}-P^{t}, might view the question of self-designation and signature differently. LC's father signed this way in his capacity as president of a section of the Swiss Alpine Club and felt justified in doing so because of his function in that organization. The son begins to sign himself as LC as early as 1929 in the first volume of the *Oeuvre complète* (and to refer to himself with the third person singular "he"), because he views himself as a missionary. But this very stance remains today LC's most dubious aspect. For thereby he saddled himself with such an excessive burden of promise that he assumed the role of an institution, with the inflexibility and hardening an institution usually entails.

Perhaps I began to look for his earliest possible developmental beginnings because I wanted to break down and remove the encasements, the defensive encrustations that had coalesced into the LC cliché. Where does he come from? This question seemed to me as crucial as asking: where is he leading us? And astonishingly enough, the answer emerged increasingly as a double echo. Initially I had wanted to follow up only the early period of LC himself. But this early period of an individual proved to be full of intense images, testimonies, and dreams of the early period of a human collective

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going back several thousand years. I realized that I had to trace a double or twofold archaeology.

I remain greatly indebted to the specialists on LC's youth named above. In this book I had intended to discuss also their most important tenets. But the documentation of my own theses demanded more and more space. It is to be hoped that what I have presented will spark necessary debates.

LC thought, dreamed, and designed in French. Over a certain period of the research boom of Anglo-American and recently also of Latin-American scholarship, this simple fact was almost forgotten. This is why I worked with the original texts whenever possible. With few exceptions, the primary formulations are given in French. For their translations I alone am to be held responsible. (A list of LC's work available in translations is not provided, in view of the present state of computerized information.)

Acknowledgments

My research led me often to La Chaux-de-Fonds (Bibliothèque de la Ville), repeatedly to Paris (Fondation LC), to Cambridge, Massachusetts, to Istanbul, and to Dublin. I feel a lasting gratitude for the welcome and generous assistance I received there.

In La Chaux-de-Fonds I received above all invaluable help from Mme. Françoise Frey-Béguin, head of the archives of the public library, whose knowledge of local facts relating to the Jeannerets remains unsurpassed; from the LC scholar Marc A. Emery; from Mme. Musy-Ramseyer, conservator of the Musée d'Histoire; from Marcel Jacquat, head of the Musée d'Histoire naturelle; and from Edmond Charrière, director of the Museum of Art.

Jacques Gubler (Lausanne) surprised me in our dialogue by letter with his elaborations on the theme of Jean-Jacques Rousseau and architecture, which offers a rich amplification of my own commentary on Rousseau in this book but which I regret I learned of too late to include here.

In Neuchâtel, at the municipal archives, I was advised by Jean-Marc Barrelet, and in the Musée d'Ethnographie by Roland Kaehr. At the Institute of Prehistory of the University of Neuchâtel, Michel Egloff showed a lively interest in my special problem. In Paris, at the Fondation LC, its director Mme. Evelyne Tréhin and her assistants facilitated my tracking down of some elusive details; Jean-Louis Cohen, whose book on LC and his Soviet

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Russian patrons (*Le Corbusier et la mystique de l'URSS*) served me as a kind of compass, immediately comprehended my basic concept and gave me important advice.

In the professional circles of archaeologists specializing in Swiss prehistory and lake-dwelling research, my unusually formulated question was met with astonishing professional interest and curiosity. Next to Michel Egloff, Hans-Georg Bandi-Klipstein and his wife showed a sensitive acceptance of my viewpoint, admittedly because of special favorable circumstances: Mrs. Bandi is the daughter of Auguste Klipstein, who went with LC to Istanbul in 1911 and remained his friend ever after. The Historical Museum of Bern was an especially rich source for the history of the reception of the Swiss lake-dwelling discoveries. Its archives were made accessible to me in the most engaging manner by Karl Zimmermann.

In Zurich I was able to turn again and again to LC's former partner Alfred Roth and to the prominent LC scholars Stanislaus von Moos and Arthur Ruegg. In the early stages of my project Marie-Louise Lienhard, Benedikt Loderer, and Sambal Oelek proved helpful partners in many a lively discussion; my colleague and friend André Corboz enlivened its continuance with critical questions.

Two areas were hard to access and particularly challenging: the reconstruction of LC's and Klipstein's experiences in Istanbul, and the clarification of LC's unexpected interest in the *crannoges d'Irlande.* For important references and documentary material relating to Istanbul, I am highly indebted to Ulya Vogt-Göknil and Turgut Vogt, to whom I extend my very special thanks. For clearing up the Dublin question relating to Oscar Wilde's father, who studied the crannogs in his country and made contact with Ferdinand Keller, discoverer of Zurich lake-dwellers, the decisive evidence was found by Radka Donnell. I thank her moreover for her unceasing, lively, supportive professional interest in my projects during all these years.

I note with pleasure that all three branches constituting the state for a Swiss citizen reacted favorably to my requests for financial aid: the city of Zurich, represented by Ms. Marie-Louise Lienhard of the Helmhaus City Gallery; the canton of Zurich, represented by the Cassinelli-Vogel Foundation with Mrs. Sylvia Staub of the Department of Education; and the federal government, represented by the Foundation *Pro Helvetia* with Christoph Eg-

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genberger, which provided me and my German publisher with necessary support. Finally, I owe thanks to the Swiss Institute for Art Research (represented by its director H. J. Heusser and by Jean-Pierre Kuhn) for practical help. We were allowed to use its facilities to photograph the illustrations. My family, especially Cherry and Nedim Vogt and my grandchildren, generously excused my frequent disappearances behind stacks of books. I thank Nedim Vogt also for accompanying me to Dublin.

Adolf Max Vogt

Zurich, June 1995

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PART I "The Weight of Things"—Does It Count Longer Than the Name of Things?

After Le Corbusier's death, Hans Girsberger, the publisher, and Willy Boesiger, chief editor of the *Oeuvre complète,* published the eighth and last volume of his works. Boesiger (1904–1990), an architect in Zurich, owner of the restaurant and movie complex Nord-Süd on the Limmat river, a flaneur, and honorary doctor of the Eidgenössische Technische Hochschule (ETH), reported in the *Dernières oeuvres* primarily on the four projects that occupied the atelier after the master's death: Firminy-Vert; Chandigarh; the new hospital for Venice; and the exhibition pavilion of the gallerist Heidi Weber in Zurich. Three of these projects were finished one way or another. The fourth, the hospital in the lagoon in the Cannaregio quarter of Venice, remained only a project. That design from LC's last months will occupy us, as it has to do, once again very clearly, with one of the main themes in my book: the boyhood period and the boyhood dreams of the future architect.

To these four projects Boesiger adds three texts: LC's last manuscript, entitled "Mise au point"; an homage to Pierre Jeanneret, LC's *eminent camarade, partenaire et compagnon de lutte* ("eminent comrade, partner, and fellow fighter"), who died in 1967, two years after LC; and the official homage André Malraux spoke at the memorial service for LC in the Cour Carrée of the Louvre.

Naturally, the last manuscript—written only one month before the author's death—is of special interest for us. But Boesiger is not able to include the entire text in the eighth volume. He therefore begins with the incisive paragraph: "I am 77 years old and the moral impulse driving me on can be summed up as follows: in life one has to make things happen, that is, one has to act with modesty, exactitude, and precision."[1] (*J'ai 77 ans et ma morale peut se resumer à ceci: dans la vie il faut faire. C'est-à-dire agir dans la modestie, l'exactitude, la précision.*)

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In this excerpt Boesiger omits an antecedent remark that we find of special importance, literally speaking, of great weight for our argument. The fifth sentence of the omitted introduction reads, "From my earliest youth on I have had a rough encounter with the weight of things. With the heaviness of materials and the resistance of materials. Add to this the human factor: people's different qualities and general *resistance* and their resistance *against* other people."[2] (*Dès ma jeunesse j'ai eu le* sec contact *avec* le poids des choses. *La lourdeur des matériaux et la* résistance *des matériaux. Puis les hommes: les qualités diverses des hommes et la* résistance *des hommes et la résistance* aux *hommes.*)

The old architect sees himself confronted all his life with the "weight of things." As an architect he finds himself more directly and gravely affected by the heaviness, the gravitational force, and the resistance of things than by *les mots et les choses,* "the words and things" that for thinkers and writers occupy the center of attention. Especially because he wrote a lot and published a lot, this distinction becomes very important. His texts, with only few exceptions, are closely interwoven with added sketches or photographs.

Michel Foucault entitled his attempt at an archaeology of the humanities (*archéologie des sciences humaines*) *Les mots et les choses* (Paris, 1966). It deals with representation (*représenter*), speech (*parler*), classification (*classer*), and exchange (*échanger*). But anyone who has to deal with architects and visual artists has to recognize other priorities. Furthermore, architects and designers regularly rise up to defend themselves in their capacity as producers of images and structures whenever the faction of thinkers and writers builds up again their old thesis and overexaggerated opinion that things exist in reality *only when* or *only after* they are made to appear in the network of words, after they are named within a text. As Charles Ferdinand Ramuz put it: "They built the city, but this has to be said by someone—otherwise the city does not exist."[3] (*Ils bâtissent la ville, mais il faut quelqu'un pour le dire, sans quoi la ville n'est pas bâtie.*) This claim fully justifies the visual artists' protesting against a "language imperialism." But such confrontations hardly affected LC. What is valid for him, what determines his thoughts and his imagination is *le poids des choses,* so persistently that it sometimes becomes overobtrusive, always remains a matter of conviction, and is experienced by him as an act of self-preservation in the face of the miserable and threatening state of the

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world; design out of self-defense and as an act of self-defense for sixty years, from 1905 to 1965.

LC needs words to explain a drawing or an illustration that sets down *how* the city should be built. His compatriot and contemporary, the Valais writer Charles Ferdinand Ramuz (1878–1947), needs words to name and signify, since without this kind of formulation no certainty would exist that the city *has* been built. Two completely different worlds. For LC the weight of things is of a higher priority than the signifying word. Yet both planes of discourse offer a possibility for poetry (*poésie*), for the creation of poems (*poêmes*). The nonverbal poetry of space unfolds from the same source as verbal poetry (as Ranke might say, is equally close to God).

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Scarcely had the Palais du Peuple of the Salvation Army in Paris been built (1926) when the thirty-nine-year-old LC, together with Pierre Jeanneret, published the *5 points* ("Les 5 points d'une architecture nouvelle"). With a strange, suggestive logic these are derived from the great gift of the turn of the century, from reinforced concrete (first reinforced with iron rods, then with steel rods). The French name *béton armé* (armored concrete) is a derivative from military vocabulary, a borrowing similar and almost simultaneous to that of the concept of *avant-garde* for the then newly developed abstract painting. In reinforced concrete the internal metal gridiron acts as a skeleton and furnishes the viscous mass of cement, water, and gravel, after it coalesces, with a unique compactness and corresponding resilience and carrying power.

An architect can take the compactness of the armored building material in two directions. On the one hand he has a chance to change the relation between load and support; he can turn the traditional column into a slender or even extremely thin support (the very thing to which LC applied the term "pilotis"). On the other hand he has a chance to play with new material consistency; that is, he can turn the traditional thick wall into a thin plate or sheet and thus acquire freedom of horizontally projecting balconies and marquees to an unprecedented, astonishing degree.

Apparently, while living in La Chaux-de-Fonds, LC was far away from the action and was hardly or minimally acquainted with the European centers where armored concrete increasingly came to be used. Yet a remarkable coincidence made him a direct witness to this development. Max Du Bois, three years his elder, was a friend from early youth who lived in the neighboring town of Le Locle. He had just completed his studies as an engineer at the ETH, the only technical university in Switzerland at that time, had just got his final diploma and become the assistant of Professor E. Mörsch, a prominent specialist on armored concrete. In 1909, Du Bois published his own translation of the trailblazing book by Mörsch under the title *Le béton armé,* and this not just anyplace but at a Parisian publisher (figure 1).[4]

Du Bois gave his prestigious translation to LC as a present, and thus at age twenty-two LC was handed a triple challenge. First, the future potential

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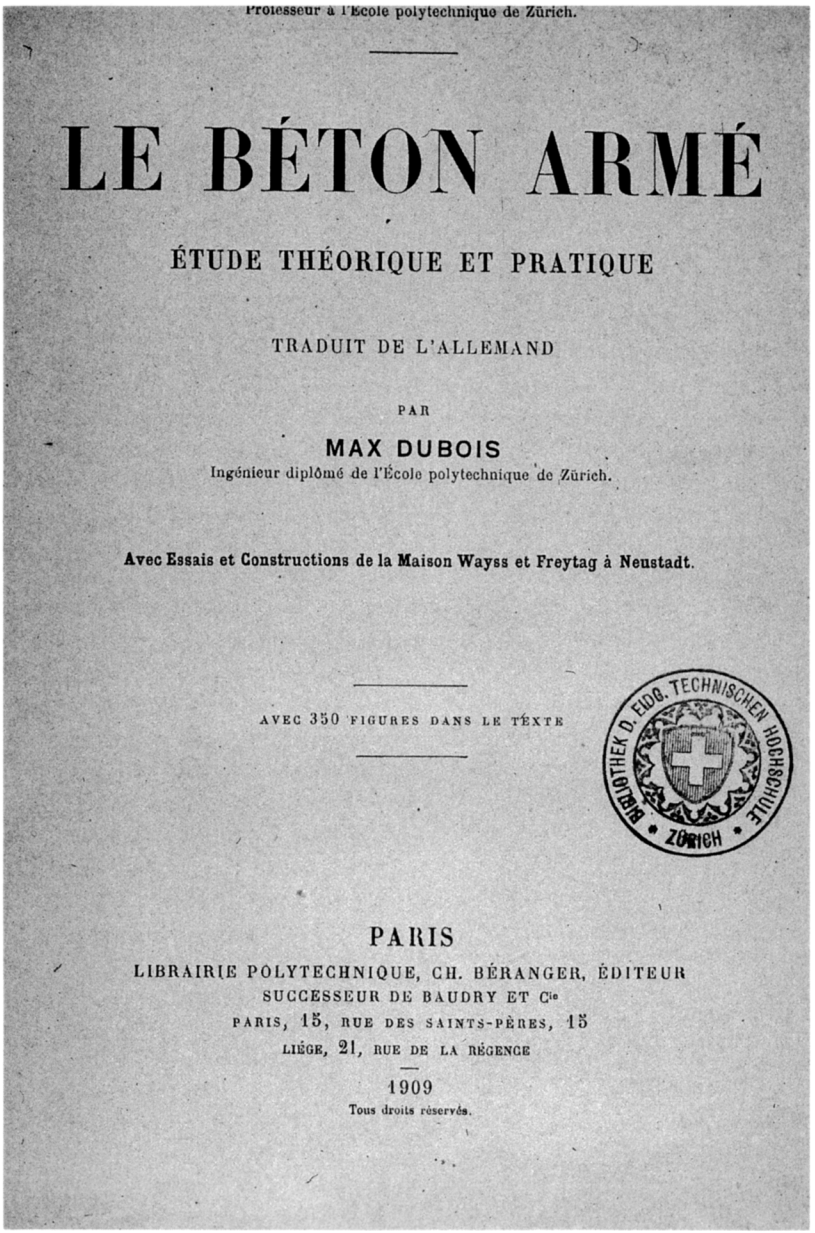
1
The standard work on reinforced concrete by E. Mörsch, in the French translation by LC's friend from his youth, Max Du Bois (1909).



Professeur à l'École polytechnique de Zürich.

LE BÉTON ARMÉ

ÉTUDE THÉORIQUE ET PRATIQUE

TRADUIT DE L'ALLEMAND

PAR

MAX DUBOIS

Ingénieur diplômé de l'École polytechnique de Zürich.

Avec Essais et Constructions de la Maison Wayss et Freytag à Neustadt.

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of the new building material, which had nothing to do with the hitherto prevalent methods of superimposition and layering of separate elements like stones and bricks but could be poured and molded, was completely visible to him (figure 2). Second, the imposing volume of Mörsch/Du Bois, thickly interspersed with mathematical formulas, must have impressed and even intimidated LC in the matter of building calculations. Questions that Du Bois treated in the name of his teacher as a new science, were and remained closed to LC in their necessary details. And third, the scientific rigor in this volume made him a true admirer of the profession of building engineering that proved so closely related to that of architects.

It seems that, caught though he was in the predictable reactions of envy, intimidation, and admiration, young LC was quickly able to overcome the first two in favor of a constructive kind of awe that did not dispirit him, but, on the contrary, increasingly became a source of inspiration. Thus, fourteen years later he published *Vers une architecture* (1923), his veritable hymn to the miracle of concrete (and to serial production). Three years after that he published his "5 points," his summary prescription for the production of the new house.[5]

What we called above a suggestive logic begins with the first point, *les pilotis.* LC's persistent research had led him to results he found worthy of being classified as laboratory findings (*acquits de laboratoire*). What occupied him and impelled him all those years was immediately presented in the second paragraph compressed into four sentences: "The house on pilotis. The house was rammed into the ground: dark and frequently humid spaces. Armored concrete gives us the pilotis. The house is *up in the air, far from the ground,* the garden extends under the house, and in addition is also on top of the house, on the roof."[6] (*La maison sur pilotis. La maison s'enfonçait dans le sol: locâux obscures et souvent humides. Le ciment armé nous donne les pilotis. La maison est* en l'air, loin du sol; *le jardin passe* sous *la maison, le jardin est aussi* sur *la maison,* sur *le toit.*)

What follows in points two through five (figure 3) appears to the reader to evolve logically from these four sentences: the roof garden (*les toits-jardins*); the free ground plan (*le plan libre*); the long window (*la fenêtre en longueur*); and the curtain wall that no longer has a supportive function (*la façade libre*).

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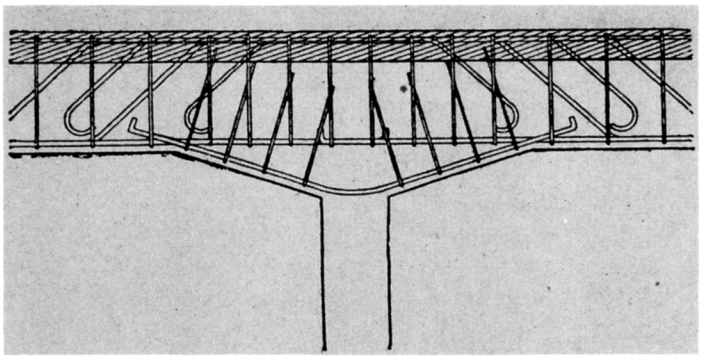
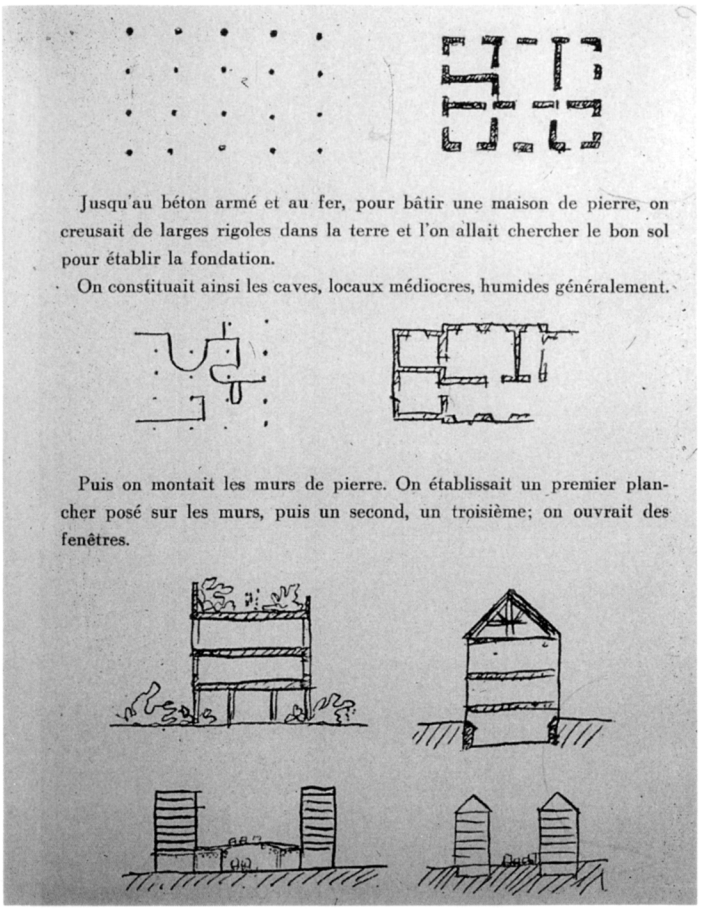
2
Mörsch, *Le béton armé,* figure 14: distribution of the iron piles in the intersection zone of supports and cross beams.



3
LC, examples of contrasts from "Les 5 points," 1926. On the right, plans and sections of the old house with humid cellars. On the left, the new dry house without a cellar.


Jusqu'au béton armé et au fer, pour bâtir une maison de pierre, on creusait de larges rigoles dans la terre et l'on allait chercher le bon sol pour établir la fondation.
On constituait ainsi les caves, locaux médiocres, humides généralement.
Puis on montait les murs de pierre. On établissait un premier plancher posé sur les murs, puis un second, un troisième; on ouvrait des fenêtres.

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Imagine LC as a fighter against damp cellars—quite an amusing notion! But much more is at stake: *the lifting up of the house in the air.* Until that time it happened only in fairytales, but from then on it becomes a possible reality. But why was it so important to the avant-garde generation? So important that it galvanized the architects' imagination? Is the double gain of ground—the garden under the house and the garden on top of the house and its double benefit—a sufficient explanation for the fascination it exerted in that period, or is there more to it?

In any case, what becomes clear is that the column's mutation to pilotis was interpreted more radically by LC than by his contemporaries such as Gropius, Mies, and Rietveld. For him pilotis are not just another version of ornamental shafts or facade elements that at best lift a portico "up in the air" and "far from the ground." What he evidently had in mind was nothing less than lifting the entire house above the ground. In his mind's eye, and consequently in his building praxis around 1926, pilotis and *la maison en l'air* are connected and intrinsically presuppose each other.

This is confirmed by the four contrast illustrations of the "5 points." In the first of these, the house has left the ground; in the ground plan it leaves behind only a few "points scattered like seedlings," to adapt a phrase by Paul Klee. Because the pilotis system transforms the floors into solid plates, the walls now can twist and turn about completely free of their load-bearing function (second contrast illustration). The cellar has disappeared, and under the house and on top of the flat roof plants are making their appearance (third contrast illustration). Only the fourth pair of contrasts is hard to read and seems not fully convincing. The housing blocks rest on pilotis but are connected also by a street platform, with the result that traffic claims two planes. Where is the benefit to the inhabitants? Isn't this a case of pilotis at any price? In fact, this sketch is an echo of LC's thesis regarding the Ville-Pilotis that he introduced into the debate eleven years earlier (1915).

The "5 points" are followed in the *Oeuvre complète* by three double pages on the Maison Cook, also of 1926. The single slender pilotis on the first floor is set in contrast to four extremely thin ones on the roof terrace, and LC again finds it necessary to produce a commentary. Its title: "Les Pilotis"; its format: again five points.[7] The pile supports make possible:

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- cleaning of the dwellings,
- separation of traffic into pedestrian and car zones,
- restitution of the built-up ground and public ground to the inhabitants,
- a sheltering awning (*abri*) that gives protection from sun and rain, and also for children at play,
- and abolition of the facade: there is neither front nor back to the house any more.

Thus, *la maison est au-dessus;* which, leaving as much open as the French wording, might translate as "the house is above ground."

The five points about the pilotis don't have the same suggestive logic as the five general points about the new house. In particular, the point regarding restitution (*récupération*) of the ground is disquieting, since it jumps from categories drawn from concrete, everyday experience to a moral-legal category. Especially because the conclusion lies between the lines as an interruption or contrast, we must examine it more closely. As far as I know, LC represented this thesis about the restitution of the building ground only one more time in a drawing (figure 4), in the second of the ten lectures he gave in Buenos Aires (October 1929), published as a book under the title *Précisions.* Using both drawing and verbal argument, he tries to clarify his thesis that the garden under the house is a repossession (*reconquis*) and the garden on top of the house is an additional gain (*gagné*).

In my opinion, LC's most felicitous and easygoing commentary combining text and illustration on the birth of the new house from the new building material is to be found in *Une maison—un palais* (1928). It is no mere chance, then, that in these years and months he is occupied with designing and executing the villa in Garches, the two houses at Weissenhof in Stuttgart, the villa in Carthage, and the Villa Savoye in Poissy. He does not merely surmise but knows for certain that these commissions are increasingly purer stages in the embodiment of his theory on pilotis and the *maison en l'air.*

The preamble of this image-and-text sequence, which I can include only in abbreviated form, amounts to a veritable surprise. A design for the house on the Côte d'Azur from the group of Maisons Citrohan is located not on the seashore but suspended *above* the water surface as if it were born from the water, a child of the rising and falling brim of the sea at the shore (figure 5):

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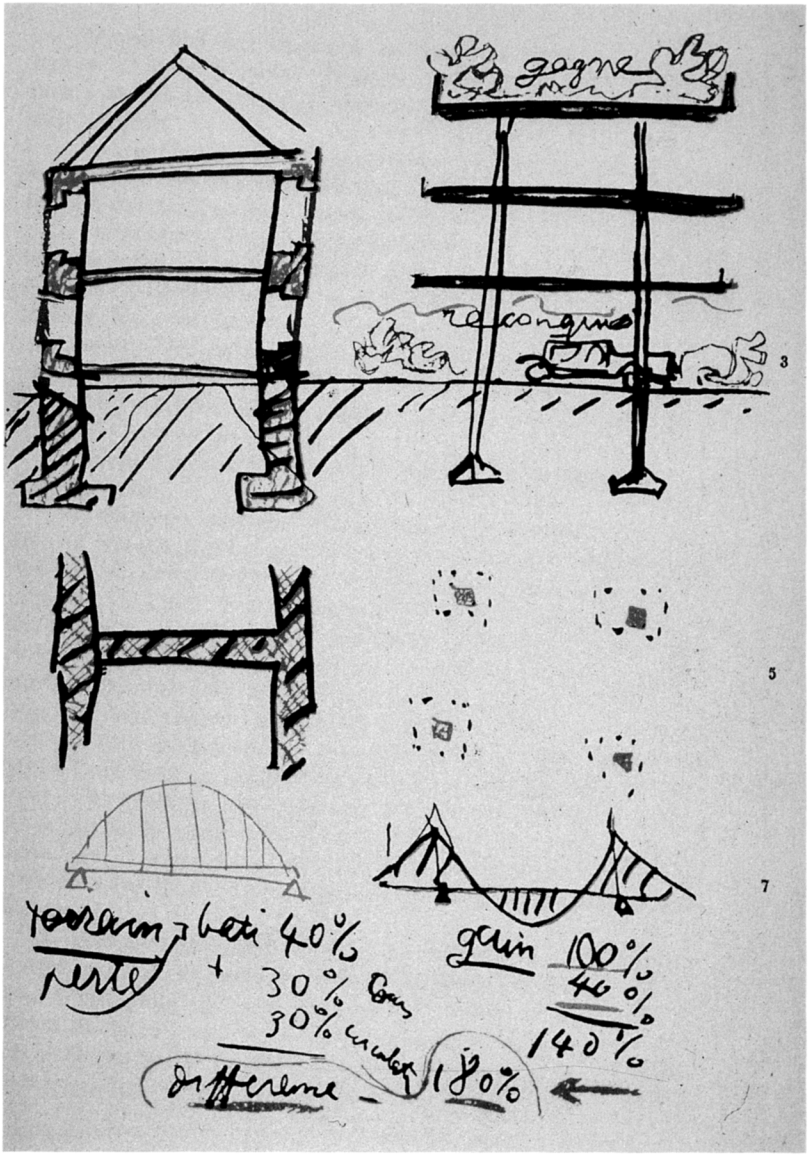
4
LC, the same contrast between old and new, three years later (Buenos Aires, 1929). The pilotis make possible the "restitution" or "recovery" of the ground under the house; the roof garden is a gain (*gagné*).



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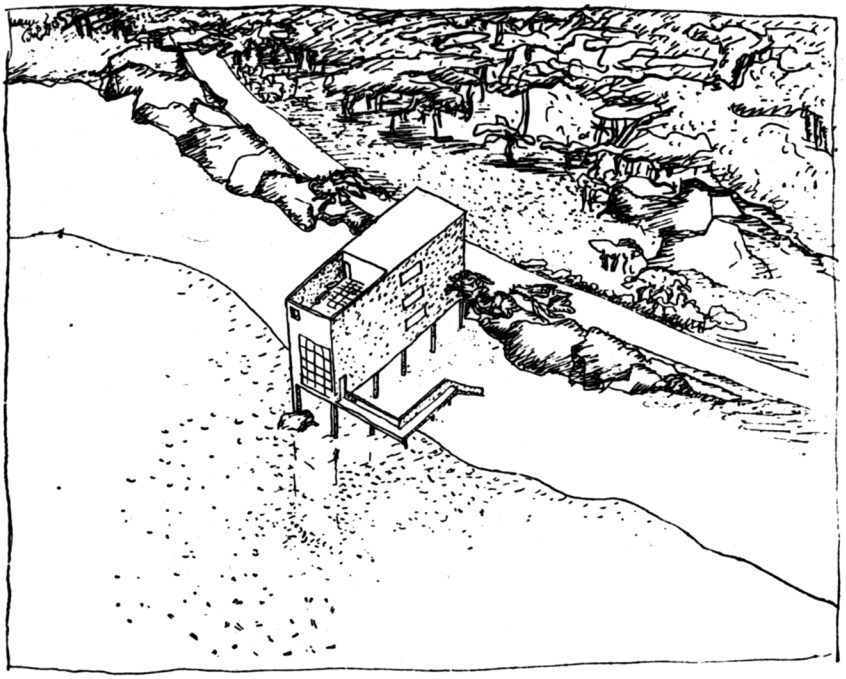

5
LC, design for a house on the Côte d'Azur, 1920. A variant of the Citrohan type is pushed beyond the shoreline, above the water.

Mindful only of following the purest traditions, the little house rises from the armored concrete . . . , as true as these true houses. . . . The house is lifted in the air, on supports, far from the ground, [therefore] healthier . . . , the armored concrete leads from one step to the next . . . , through this new building material everything is upturned. Through the commands of the spirit the house is turned into a palace . . . by truth can be achieved dignity . . . , like a crystal. The rule of the game becomes visible, the game is won. And one grasps that this box, smooth and neat, is stretched taut under the sway of multiple intentions.[8]

(*Susceptible . . . de poursuivre les traditions les plus pures, voici venir la petite maison de ciment armé . . . vrai comme ces maisons vrais. . . . La maison est en l'air, sur pilotis, loin du sol, plus saine . . . le ciment armé* [*conduit*] *d'étape en étape . . . par ce matériau neuf, tout est boulversé. Sous les injonctions de l'esprit, la maison devient un palais . . . par la vérité attendre à la dignité . . . comme un cristal. La règle du jeu apparaît, le jeu est gagné. Et l'on saisit que cette boîte, lisse et raide, est tenue sous la pression d'intentions multiples.*)

Cette boîte, this box smooth and neat, is the furthest and last representation of the miracle of armored concrete, and it imprints itself lastingly on the imagination. For this reason it is used by LC between 1928 and 1930 with great satisfaction (figures 6–8): at first it sounds unpretentious and self-critical and then it ingratiates itself as a physically apt comparison. Like an

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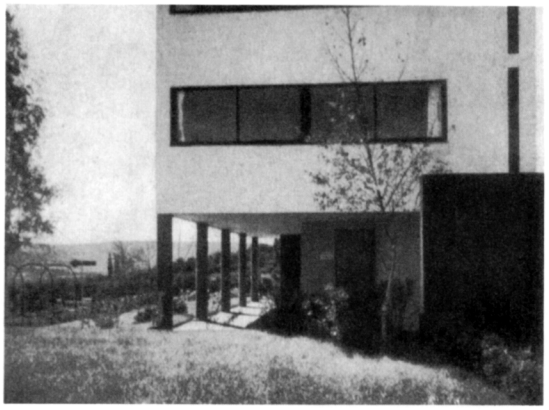
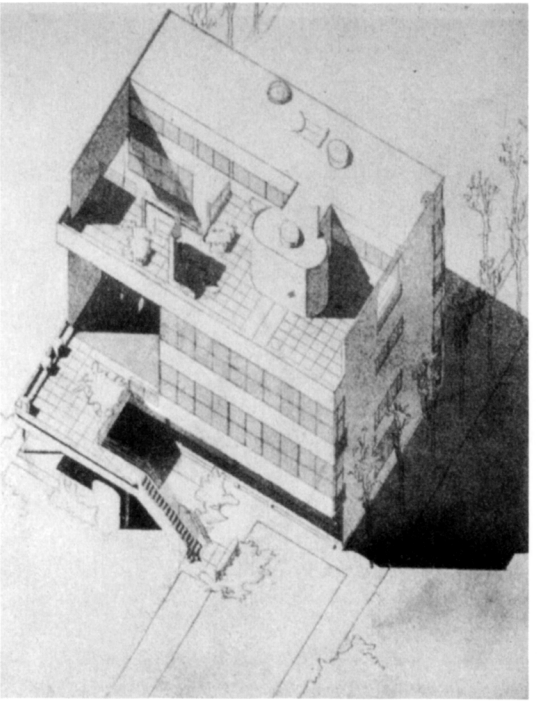
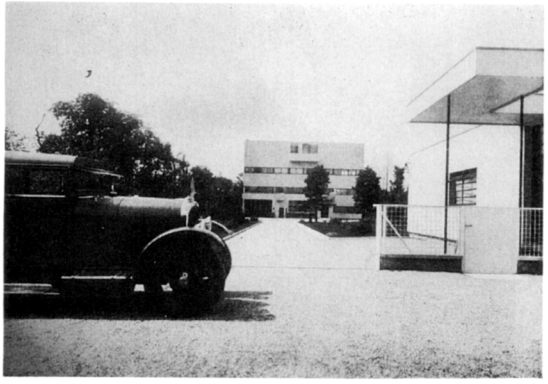


6
LC, Weissenhofsiedlung, Stuttgart: the new understructure.

7
LC, Garches: the house as a box.



8
LC, Garches: to the new house, seemingly light as a cardboard box, belong the new automobiles and the new thin supports (pilotis).



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eggshell, the cardboard box is a structure as light (*le poids des choses*) as it is stiff and unyielding, in spite of its apparent fragility (of an eggshell) and its liability to buckle (of a cardboard box).

Through the use of armored concrete the struggle against great weight and for greater lightness in building had taken a new turn and now yielded sheets and plates as thin as cardboard, capable of taking over the role of formerly thick walls and ceilings and floors. LC is indefatigable in exploring, in ferreting out all possible aspects of this totally transformed confrontation with the weight of loads and the forces of support, with compressive and tensile strength. What was about to find its purest embodiment in the Villa Savoye he calls the *boîte en l'air,* and the building type emerging in this building series we propose to call *boîtes sur pilotis,* boxes on pile supports.

The "water-born" house on pilotis at the Côte d'Azur is a daring case: not only is it raised above ground but in part it projects above the water surface. The fascination with water is not truly surprising: water visibly shows in a simple, lively, and precise way the laws that the "weight of things" has to obey. What is really astonishing is how consistently and early, namely, at the age of twenty-four, six years before his declaration of the "5 points," LC sets out to explore the possible sites and placement for the new house poised between earth, air, and water. From 1920 until 1922 he is occupied with the Maisons Citrohan: "A type of house with *only two load-bearing* walls out of bricks, stones, cast concrete blocks, etc., in keeping with the building materials used in that region" (*Deux seuls murs portant en briques, pierres, parapaings, etc., suivant les matériaux employés dans le pays*).[9]

After the conventional variant on the ground LC effortlessly adds the type on pilotis raised halfway above the ground, then heightens the suggestion of complete liftoff matching that of the buildings at Weissenhoff, and does not rest until his house's supports stand also in water (figures 9–12). The new house becomes thus an amphibious creature, viable in two elements, in water and on land (as expressed in the old zoological term in German, *beidlebig*). As if this weren't enough, LC's new house being a *boîte en l'air* exposes it to the exigencies not just of two but of three elements. By likening it to a fish, a bird, and a terrestrial creature he turns it into architecture on land, above water, and up in the air.

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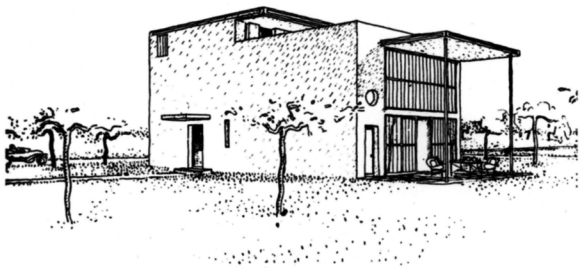
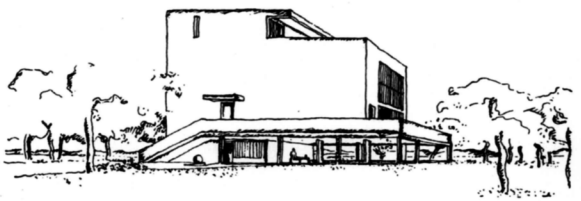
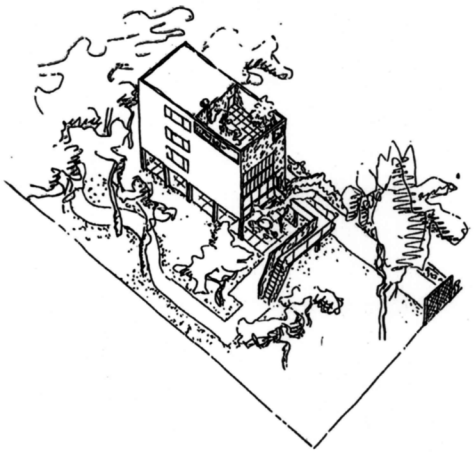
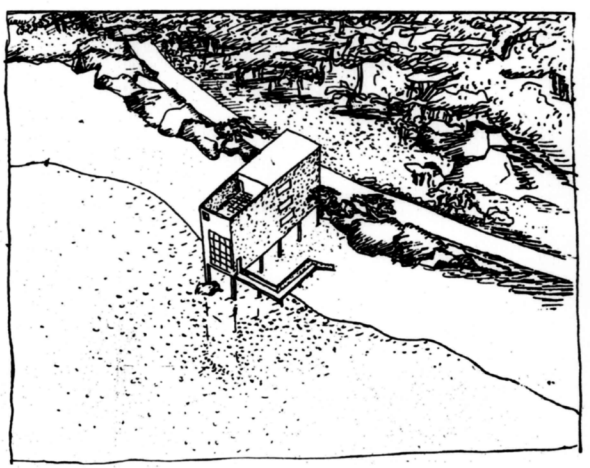


9–12
LC, Les Maisons Citrohan, 1920–1922. Two load-bearing walls have to suffice. On the ground (9), half-raised (10), fully raised (11), and finally projecting over the water as an amphibian (12).







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To recapitulate, it appears that LC endeavored more radically, more doggedly, and more imaginatively than his avant-garde contemporaries and fellow architects to use both possibilities offered by the new building material of concrete—its strength compacted to pilotis, and its compression to cardboard-like sheets and plates. Our next question is, how does this interest shape his work as a whole? Is this pioneering impulse at work mainly in his early period, in LC's so-called white years? Or does this box on pilotis prevail also in his later work?

What I am undertaking here is an attempt to develop a typology from a frog's perspective. What interests me is how a building rises from the ground; how the architect begins; how he anchors himself in the ground, how he supports himself on it while at the same time he displaces it; what happens at the emergence from the earth's crust or the grass's scar and how this is mastered.

I don't believe that LC himself refers to a "frog's perspective" anywhere in his work, yet his "5 points," including the supplementary commentary (1926), then shortly after that *Une maison—un palais* (1928) and finally *Précisions,* all lead the reader and the observer first downward to this point, to the *degré zéro de l'architecture,* whence everything new begins that LC strives for with all his might.

In approaching the whole work we are taking a direct route by largely limiting ourselves to LC's built works, and we rely for our evidence on the economical and clear tables in the posters of *LC et Pierre Jeanneret (1922–1940, 1951–1967)—Projets réalisés,* published by the Institute for the History and Theory of Architecture at the ETH-Zürich.[10] It will become apparent that in at least two cases designs ready to be built that were not completed nevertheless have to be added into our series of building types, since otherwise the completed examples of the work of conception and design interfaced in a coherent creative continuum would be inadvertently disjointed.

Among LC's first works built in his hometown of La Chaux-de-Fonds we find a building that contains, even though in a veiled fashion, a pilotis experiment as early as 1916: the Villa Schwob (figures 13, 14). Its impec-

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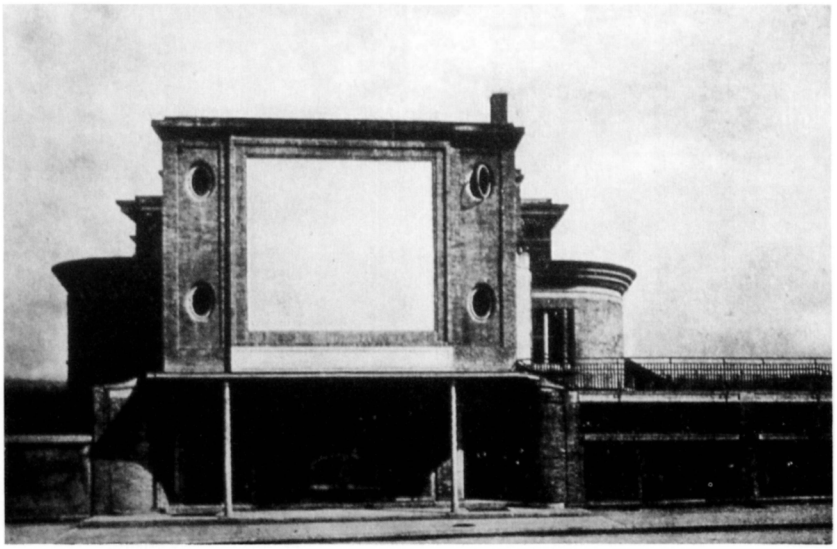
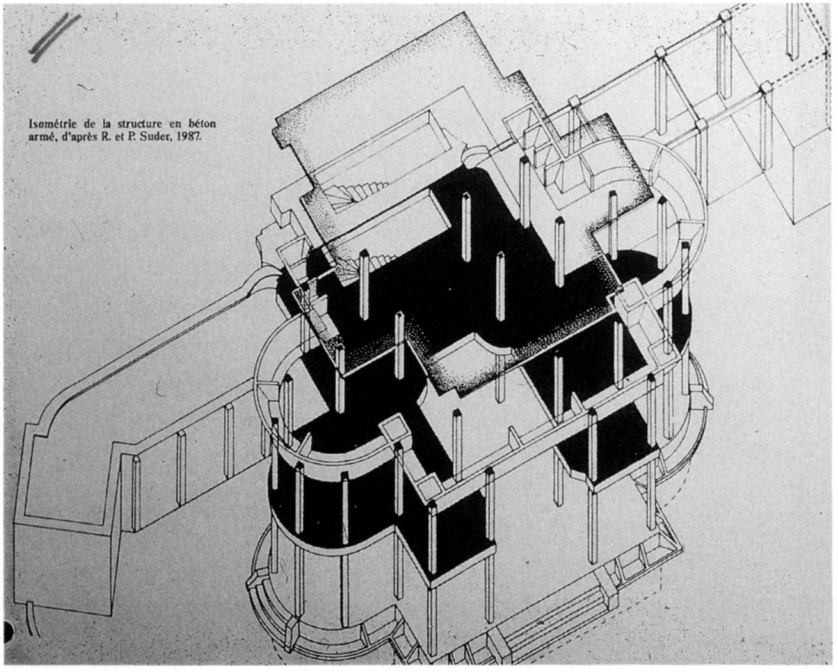
13, 14
LC, La Chaux-de-Fonds, Villa Schwob, 1916. A first attempt to use pilotis, which costs him dearly; he "loses feathers in the fray."





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cable yellow brick masonry reads as a declaration of total adherence to the old school of load-bearing walls, but the inner organization is decisively supported by a system of pilotis, which we can view as the first application of the then newly developed Dom-ino principle.[11] This experiment proved perilous, because the unusual construction method led to excessive costs well above the agreed-upon amount, and the client threatened to sue LC in court, a debacle that prompted LC's final decision to move definitively to Paris.[12]

The early buildings in France, the Villa Besnos in Vaucresson (1922) and the studio building for Ozenfant (also 1922), realized a series of the demands voiced in the "5 points." But the distinct articulation of a pilotis that renders wide open and transparent the whole space cavity on the ground-floor level first appears in 1923 in the Villa La Roche in Paris-Auteuil (figures 15, 16). Already in the first sketch,[13] the gallery wing for the La Roche art collection is supported in the middle axis by a single pilotis, which moreover stands in the "wrong" or most unexpected spot. Where would be its "correct" placement? If paired with a second pillar, in the back; if single, right in the middle. Such would be the dictate of habit regarding gravitation, which apparently is not yet able to cope with the fact that concrete and steel begin to undermine just this kind of ancient expectation. Here, as it happens, we confront a provocation by omission. One element is missing, or a single one is used in an irritating spot.

The overly slender, thin-as-a-needle pilotis is one of the provocations; the other one is the new wide-open cavern of space in its transparency. Especially in his youth, LC is particularly avid to use all new discoveries; he observes with intense attentiveness his own steps into the new territory. Seemingly by accident he drops the next remark in *Précisions:* "It is not pointless, I repeat, to keep rereading one's own work. The awareness of one's own steps is the springboard of progress."[14] (*Il n'est pas inutile, je le répète, de lire constamment dans son propre ouvrage. La conscience des événements est le tramplin de progrès.*)

Who is saying this? A narcissist? If he were one, he would keep this insight to himself and would not recommend it to all of his colleagues. Here we meet the Calvinist in LC, who never trusts impulse alone. LC's avowed self-awareness leads us to conclude that he certainly knows that by his provoca-

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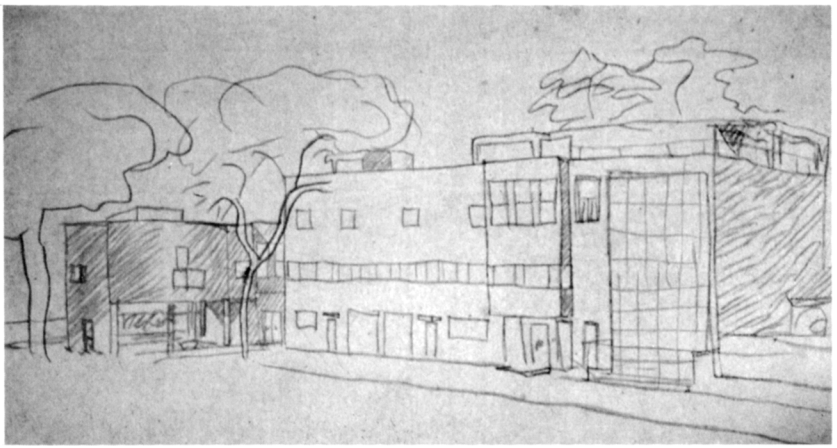
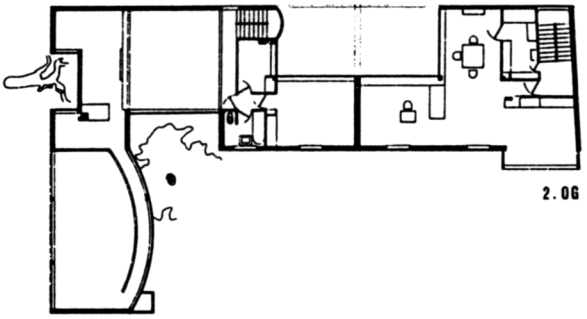
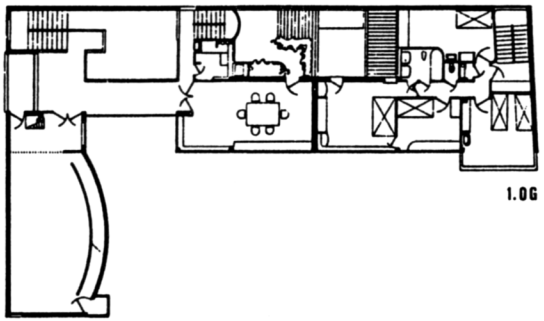
15, 16
LC, Paris-Auteuil, Villa La Roche, 1923. An attempt to subvert the normal expectations of the gravitational instinct. Front view, plans of first floor and ground floor.







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tively placed (or omitted) pilotis he simultaneously is articulating the spatial void. He also certainly knows that he is in the midst of a process of giving to the old French definition of space, *le plein et le vide* (translatable both as "the mass and the void" and "fullness versus emptiness"), a new twist, a new dimension, and also a new lightweight quality. Consequently, his attention immediately divides, is focused on both kinds of new freedom: the new freedom of transparency for the void and the new freedom to use attenuated minimal supports.

The theme of the spatial void he celebrates in the Lotissement à Alvéoles (1925; figure 17), a housing project for a garden city in which the relation between *le plein et le vide* is already heightened to a 1:1 equalization. The word *alvéole* means oral cavity, the air cells of the lungs, and also a honeycomb cell of beeswax, exactly what LC searched for in the way of space: a combination of a *cavité* (cavity) and a *cellule* (cell). He wants to incorporate into the dwelling a maximum of outer space, which is implanted into the building as a cube of air. The Pavillon de l'Esprit Nouveau (1925; figure 18) represents exactly this kind of unity of interior living space and internalized outside space (which thus becomes "privatized"). LC emphasizes: "The Pavillon is to be understood as a cell in a block of houses constructed as if it were 15 meters above the ground. Apartments and hanging gardens."[15] (*Le pavillon sera donc une "cellule" d'immeubles-villas construite entièrement comme si elle se trouvait à 15 m. au-dessus du sol. Appartements et jardins suspendus.*)

To situate properly this new basic unit of inside and outside, LC shows two views of the housing block, which now is supposed to give the inhabitants a piece of nature high above the ground (figure 19). The rare term *alvéole* LC keeps on using in 1925, but more and more he begins to substitute for it the term *jardin suspendu* (hanging garden). Nature is wooed and also alienated, into a roof garden and as hanging garden over the apartments underneath. The tree that accidentally grew on the site of the Pavillon de l'Esprit Nouveau LC used as a proof that modernism does not destroy but cultivates nature, nurses it alongside the buildings and on top of their roofs. Thus, the proposed restitution of the built-up ground in the "5 points" is exactly implemented.

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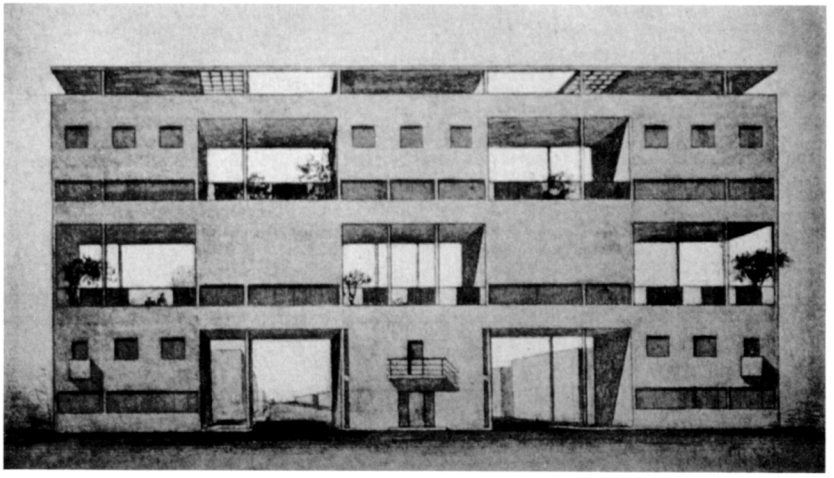
The question remains whether still another kind of restitution is also involved here, namely, a relegation of all earthly burdens to the ground in order to stage a *Nature-hors-sol,* a nature free of or "outside" the soil, much like today's hydrosol cultures. This technical agricultural term, and the contemporary technology of raising plants outside, that is, above the soil, has come to flourish after LC's death. But it manifests a similar tendency to that inadvertently anticipated by LC through his new formulation of *le plein et le vide.*



17
LC, housing project for a garden city: Lotissement à Alvéoles, 1925.

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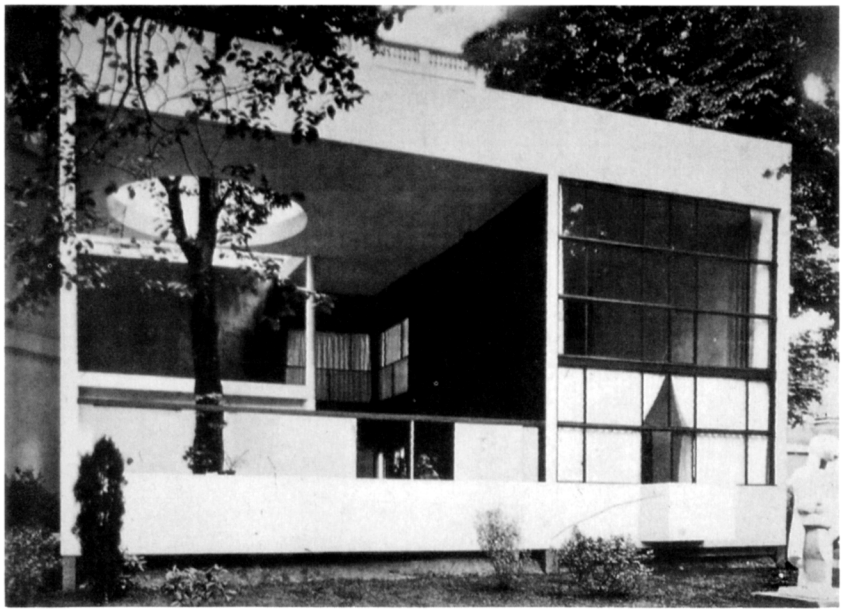
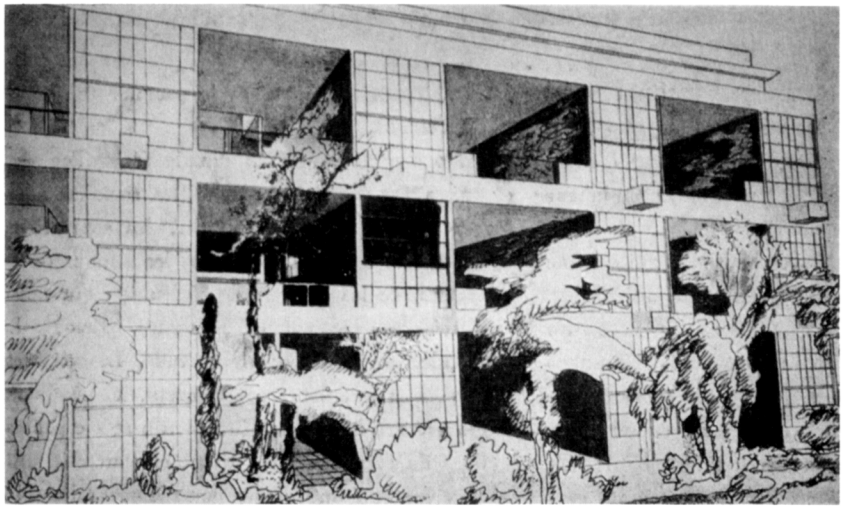
18, 19
LC, Pavillon de l'Esprit Nouveau, 1925. "To construct a cell in a housing block as if it stands 15 meters above ground" (LC). The Pavillon by itself (18), and conceived as part of a housing block with a "hanging garden" (19).





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The term *cellule* for the Pavillon de l'Espirit Nouveau LC set in quotation marks, something he rarely did. Obviously, he was aware that the many meanings of this word can prove irritating, potentially referring to a monk's cell and a prison cell, to a structural component of a living being and to a living being itself, namely, the protozoan. As a matter of course, we are immediately reminded that LC, barely twenty years old on his trip to Tuscany in 1907, was struck deeply by his encounter of the Certosa d'Ema monastery near Florence. To be sure, there is a certain validity to what H. Allen Brooks, with a dash of sarcasm, said about LC's first trip to Italy: "He has eyes that do not see."[16] In fact, on this whole trip LC remained blind to the presence of the Renaissance, although sixteen years later he gave one of the chapters of *Vers une architecture* the title "Eyes That Do Not See" and thereby put on trial the whole architectural profession. On that trip he certainly missed the Renaissance and noticed only that old monastic building.

What was the reason for this exception? It is the fact that the Certosa architecturally embodies the two medieval cardinal virtues of asceticism and meditative concentration in an impeccable and eloquent manner, as a construction interweaving economically two cellular elements—the frugal interior cubicles and the secluded privatized exterior areas (figure 20). Commentary of the visitor LC: *Je voudrais toute ma vie habiter ce qu'ils appelent leur cellules.*[17]

That's how he would like to live. This double cell as a secluded interface of the internal and the outdoors that he "would like to inhabit all [his] life" in truth occupied him all his life, and he noted under the group plan, "This monk's cell in the Certosa d'Ema would serve wonderfully for workers' housing because the individual building is fully self-sufficient. Marvelous calm; the big wall would block the view of the street."[18] (*Cellule d'un frère à la Chartreuse d'Ema s'appliquerait admirablement à ces maisons ouvrières. Le corps de logis étant entièrement indépendant. Tranquillité épatante; le g[ran]d mur pourrait cacher la vue de la rue.*)

Does the Lotissement à Alvéoles realize this early notion of applying the cell principle from Tuscany? Here we don't have workers' housing, how-

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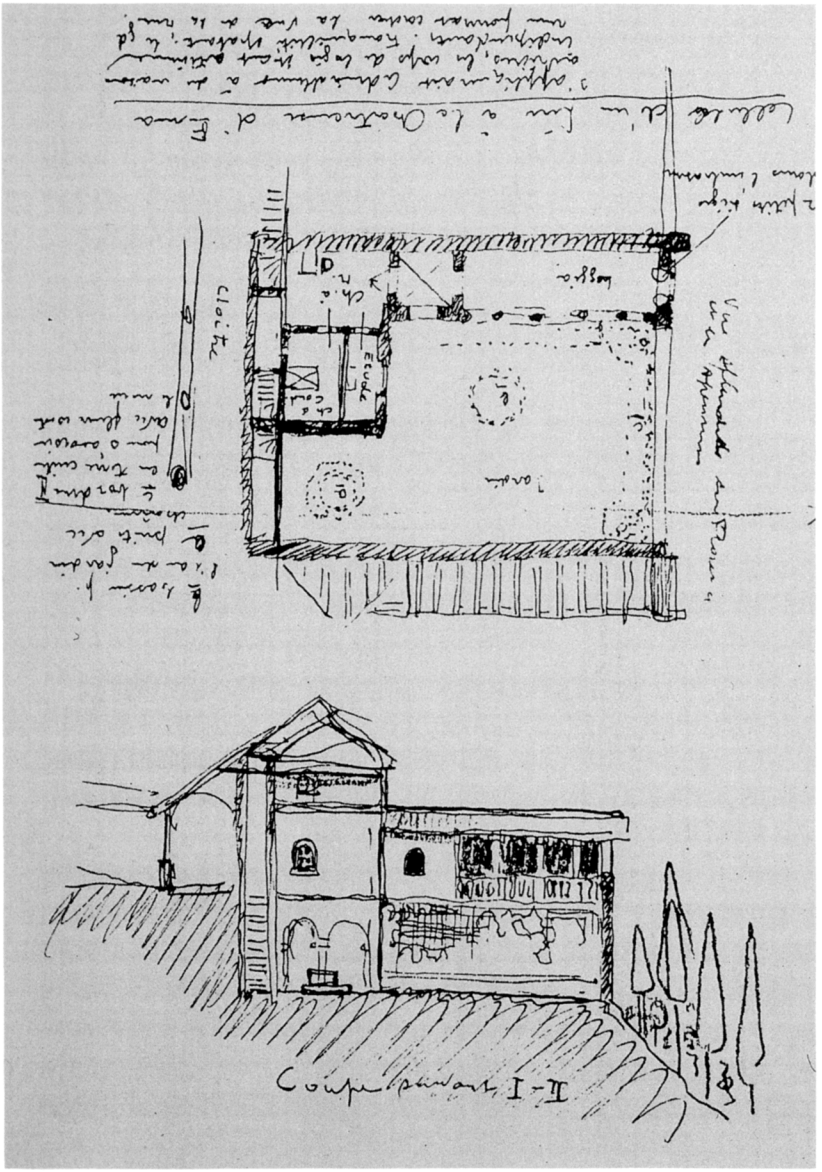
20
LC, sketches of the Certosa d'Ema near Florence, 1907. "I would like to inhabit all my life what they call their cells."



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ever; what we see is a housing development, a garden city. LC certainly would not object to this parallel. With this project he certainly would have advanced at least his wish of 1907 to a contemporary level: a monk's cell and a monk's garden raised to the height of fifteen meters above ground.

In a fundamental study two years earlier, in 1923, in connection with the building of the Maison La Roche-Jeanneret at the Rue du Docteur Blanche, LC circles around the fourth meaning of *cellule,* the one referring to protozoa. Under the title "La maison standardisée" he draws a box (figure 21), calls it "1 Cellule," sets next to it a box of the same size cut in half, and then shows us in the third and fourth sketches how, with two and a half such *cellules,* can be composed a block on pilotis (fullness on top of emptiness) or how, keeping to the same volume, the internal space can be doubled if one omits the pilotis (fullness on top of fullness). In a second series of sketches he shows possible variations (figure 22), a veritable ABC of the bisection and addition of cubic protozoa. He is concerned to demonstrate that "the rational construction of cubes does not destroy the initiative of the individual [contractor]. One just needs to play with it according to one's taste."[19] (*La construction rationelle par cubes ne détruit pas l'initiative de chacun. Il n'y a qu'à en jouer suivant ses goûts.*)

This play interests us because we marvel at the ease with which closed and open spaces are interchanged. What for many hundreds—thousands—of years was unthinkable, thanks to the wizardry of concrete and steel technology now becomes an easy game. The wizard is called "pilotis." If the cardboard walls are not available, it leaps to the building's edge to take their place with utmost precision. The monks from the Val d'Ema would not believe their eyes. The magic lies in the ease with which LC interlocks two totally divergent elementary notions, a Platonic geometric one and a concrete and dynamic one (maybe nonetheless romantically dramatic?).

In the table "La maison standardisée" LC sees before him a pure Platonic form, and he handles it impeccably as a surveyor. No trace here of growing soil, of pointed stakes that have to be rammed into dry or wet soil or under water. How does he link up the Perfectly Pure with the Raw Real? By one single sacrifice. He trims down the poles, breaks off their points, and inserts them like bolts or rolls or pipes, as interchangeable as the cardboard walls of his *boîtes.*

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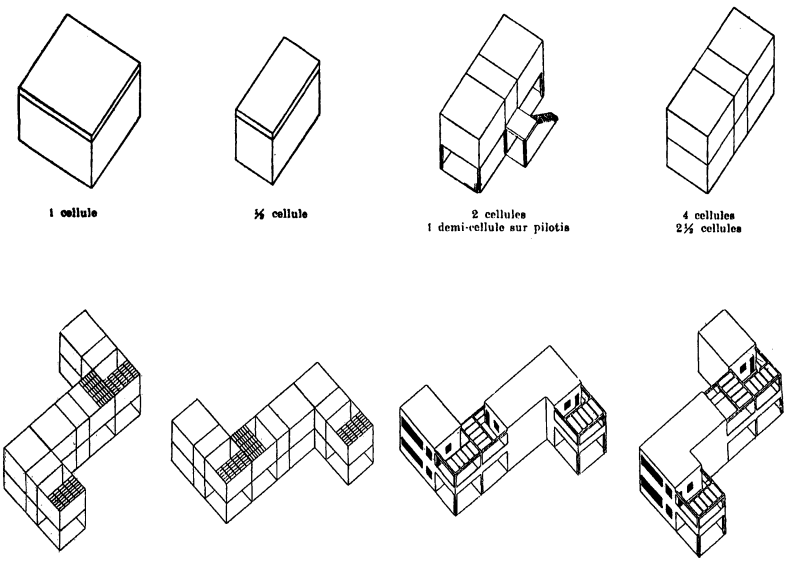
21, 22
LC, the "standardized house," 1923, composed of whole and half cells closed by walls or opened by pilotis.



However, this effortless adaptation is deceptive. Just as the building ground is far from being a tidy ideal plane, the ambitious project of lifting whole buildings above ground (as in the third sketch of figure 21) is far from being a Platonic play of the imagination, but is a tour de force.

LC himself always knows this already and therefore draws the same procedure at the same time also completely differently, namely as an anchoring of the piles deep into the earth that first makes the raising aloft possible at all. Later on he will not play down the cross section through the building he presented to his audience in Buenos Aires, but, on the contrary, will dramatize it (figures 23, 24). He reduces the pillar support to one single pilotis and separates the raised housing block from the ground by a highly eloquent arrow that suggests the sweeping swing of a scythe.

Two divergent concepts in one and the same mind. At least in his young years LC does not seem to suffer under such polarizations. On the contrary, any suspicion that the resolving of contradictions may be premature is put to flight before the belief in a radiant harmony.

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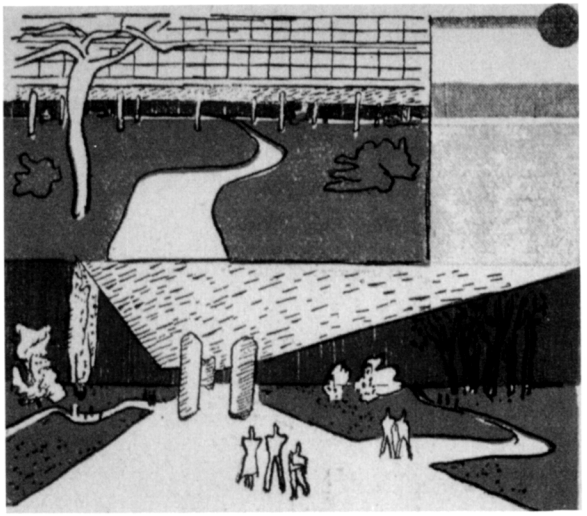
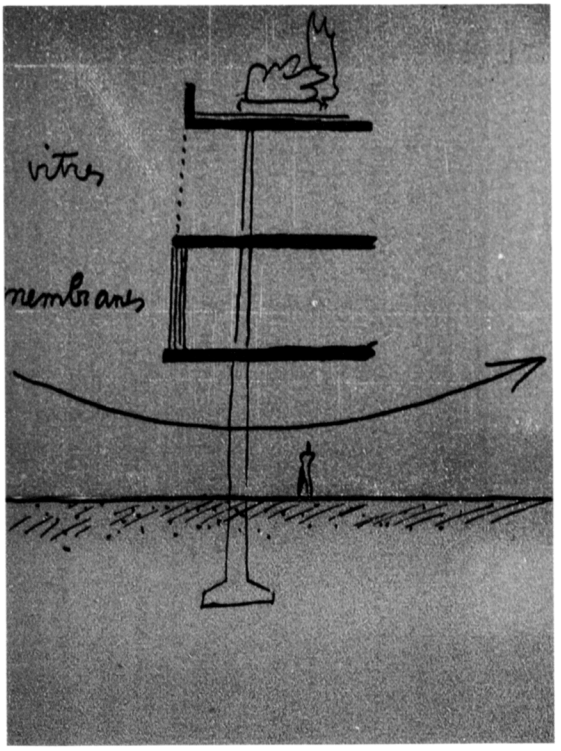
23, 24
LC is sixty-four when he publishes these drawings in 1951 in the Italian Astra-Arengarium series. He shows the raising of buildings in the air by pilotis as seen from the lawn, from under the house, and finally in a section, pathetically overdramatized with a sweeping and obtrusive arrow.





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Seen from the frog's perspective, LC seems to adhere with astonishing consistency to the principles he had set out to obey at the start. We have observed the hidden inclusion of pilotis as supports in the Villa Schwob and the first full articulation of their potential in the Maison La Roche-Jeanneret. Now we are following the second stage of this trajectory, the one leading from the People's Palace of the Salvation Army (1926; figure 25) to the Villa Stein in Garches (1927; figure 26), the two Weissenhof buildings (1927; figure 27), and the villa in Carthage (1928; figure 28), finally arriving at the Villa Savoye in Poissy (1928; figure 29).

Parallel to it another trail is laid out, or, to put it differently, another avenue is set in perspective: the *grandes constructions,* as a series of fully orchestrated big buildings, begin with the competition for the project of the Palace of the League of Nations (Geneva, December 1926–January 1927) and continue as far as the Palace of the Centrosoyuz in Moscow (1929). In the middle of May 1926 the council of the League of Nations published the announcement of an international competition for its future seat in Geneva. The deadline for submission of entries was January 25, 1927. As Alfred Roth, who was to be fully engaged in the project, reports in detail,[20] LC and Pierre Jeanneret let the first months after the announcement elapse unused. Finally in November 1926, when LC responded to an invitation to give a lecture in Zurich, two students of Professor Karl Moser, Ernst Schindler and Walter Schaad, applied to be accepted as co-workers at the atelier at the Rue de Sèvres. "LC was very pleased at their wish and accepted their application gladly as he urgently needed assistance for the completion of the League of Nations project." Three more students of Moser joined them shortly after that, Hans Neisse and Alfred Roth from Zurich and J. J. du Pasquier from Neuchâtel, in addition to Zvonimir Kavuric from Zagreb, Yugoslavia. In two short months and working increasingly through the night, this group completed the Geneva project in time for the deadline. It was one of 377 submitted designs, and the one that unleashed the greatest consternation, exasperation, and fascination. Together with Pierre Jeanneret and this group,

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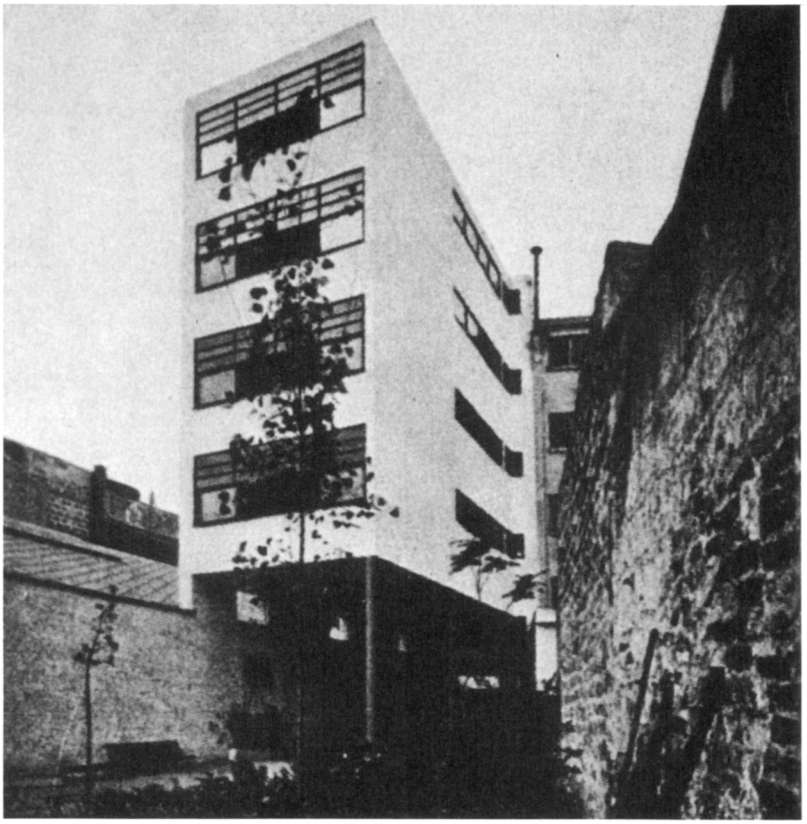
25–29
The striking consistency of LC's gradual steps toward the Villa Savoye: The Salvation Army building, Paris, 1926 (25), the Villa Stein in Garches, 1927 (26), the Weissenhof buildings in Stuttgart, 1927 (27), the villa in Carthage, 1928 (28), and finally the Villa Savoye in Poissy, 1928–1930 (29).



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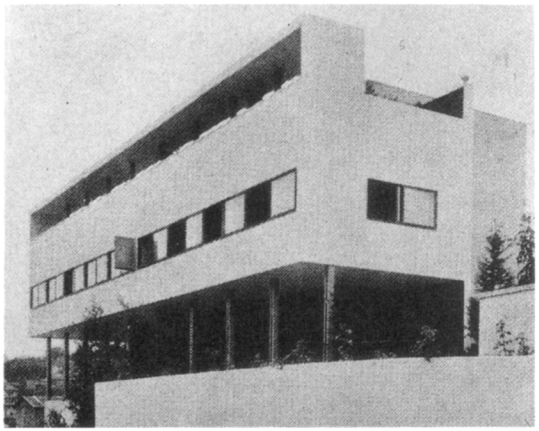

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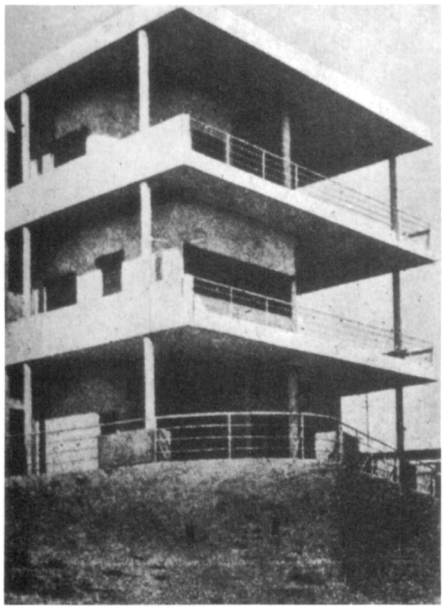

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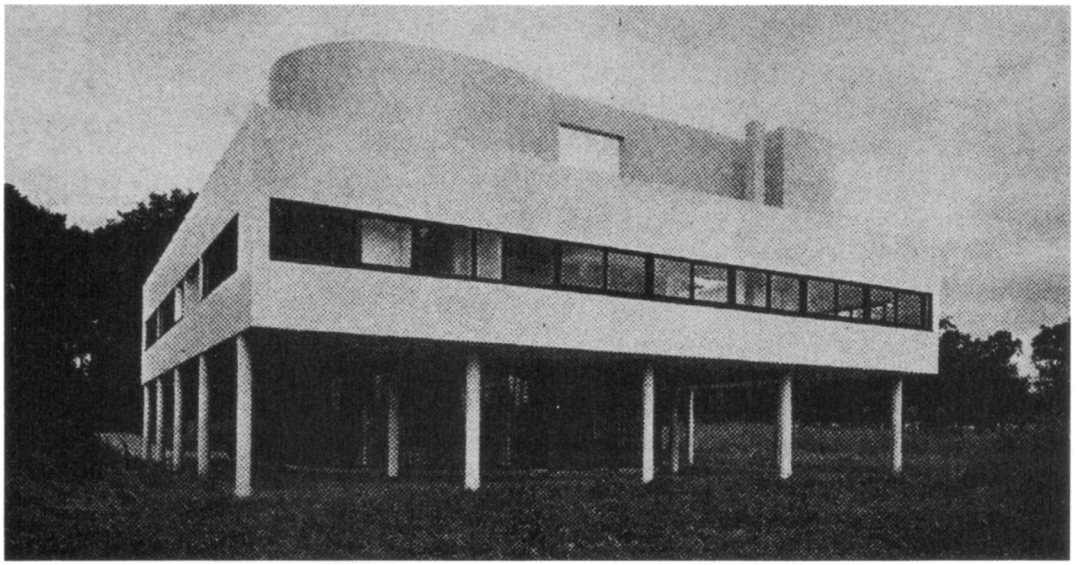

29

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gathered ad hoc from the Zurich school of Karl Moser, LC composed and orchestrated his first large project—but he was prevented from performing and conducting it.

The League of Nations competition initially intended to award one first prize, two second prizes, and three third prizes, but things took a totally different turn. The jury ended its deliberation on May 5, 1927, with a "deplorable compromise," awarding one first prize *ex aequo* to nine projects of completely different bent; and one year later, in the spring of 1928, Nénot and Flegenheimer were definitively commissioned to build their version.

It seems necessary to me to recall these circumstances, dates, and names because the League of Nations affair pushed LC across a threshold and changed his concept of his profession. He became at the same time an accuser and a missionary, an itinerant preacher who carried his struggle and propounded his ideas all over the world, and in the process developed a lecturing technique of extraordinary suggestive power and eloquence. Alfred Roth justly calls the Geneva affair LC's bitterest episode and links to it at the same time the artist's "meteoric rise to fame."[21]

LC's humiliation and rise to glory at Geneva turned him into a multimedia disputant. What he simultaneously states and illustrates with drawings and slides combines to form a specific language, blending image and word, that increasingly forces us to distinguish it from the word-to-word concatenation characteristic of the language of a pure writer or speaker. LC's lecture performance is a stream of thought flushed with vivid perception and compelling imagery, sketched with charcoal on paper, underpinned by words, and accompanied by the arrested points of a photograph. His two main lectures—one on architecture, the other on urban planning—he gave first in Zurich, then in Madrid and Barcelona. They were published in 1928 as *Une maison—un palais,* accompanied by a third section commenting on the "battle" of the League of Nations and recording the *requête* (bill of LC's charges). For our kind of inquiry the new word-image interface of this book is very important. We see it as a preliminary stage to the volume *Précisions* (1930), based on the ten lectures LC gave from October 3 to 19, 1929, in Buenos Aires, which refines this interface.

But let us return to the steep but consistent steps of LC's trajectory. Of the five individual buildings mentioned at the start of this chapter, one can

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assign the Villa Stein in Garches to that complementary series that developed parallel to the pilotis under the catchwords *alvéole* and *jardin suspendu.* The honeycomb space here appears larger and more dominant than in the Pavillon de l'Esprit Nouveau, because it has lost its third wall and allows us to look through the whole building, just as planned in the Lotissement à Alvéoles. To be sure, the building has low pilotis on the garden side, but they do not clamor for attention as much as in the other four buildings. Just as it is possible to view the Villa Stein as the culmination of the *alvéole* series, there is much to be said for the Villa Savoye's being the crowning point of the pilotis series. A possible assertion. The interconnection, the consistency of the four steps (if we include the Villa Schwob, there will be six steps) is evident enough, but how can it be comprehended? What takes place is a logical advance in visualization and clarification of concepts; but this series of steps, including the Villa Savoye as its culmination, did not drop down from heaven.

What is more likely is that it was handed to the architect by chance by the Orient. To substantiate this, I propose two theses: one, that the Salvation Army building (1926) and the two Weissenhof buildings (1927) would hardly be thinkable without the *cikma* construction of the Turkish house, and second, that the villa in Carthage (1928) and the Villa Savoye (1928) are based on the Turkish *kösk* type, but develop further the *cikma* construction that had been raised to a new level on the banks of the Bosporus and with modern means.

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LC immediately reacted to the first town built in a typically Turkish manner that he came upon on his trip to the Balkans in the summer of 1911 with his friend Auguste Klipstein. This town is Turnovo (situated in Bulgaria today), north of the Balkan mountain massif on the ascent toward the Shipka Pass. Turnovo is visibly a mountain town, lying on a steep slope that descends over several rock terraces to the River Yantra. This circumstance afforded a favorable precondition for the typically Turkish oriel type of house, achieving a particularly strong articulation on these stepped hills rising to a high altitude. LC took photographs[22] and drew the first row of wooden houses directly on the slope with their oriels projecting daringly over the precipice (figure 30). Behind that, and staggered above it, is a building with an oriel two stories high, projecting above the ground floor. With this drawing LC took in hand the thread that led him via the Shipka Pass, Kazanlŭk, Stara Zagora, and Khaskovo (in Bulgaria today) and past Adrianople/Edirne and Rodosto/Tekirdag (in the European part of Turkey today) to innumerable striking architectural impressions, and finally to Istanbul itself. Istanbul, once capital of the eastern Roman Empire and then of the Byzantine Empire, now the metropolis of Ottoman Turkey on the Sea of Marmara and the Bosporus, captured the attention of both friends for seven and a half weeks, the longest stay on their whole journey. There the oriel principle impressed itself indelibly on LC's imagination.

The oriel principle is in fact a characteristic of the Anatolian house, and it branched out to the north into the Balkan region, as E. A. Kümürcüoglu proved.[23] From LC's preserved drawings en route, and even from his photographs, we get the impression that the young wanderer across continents, now in the grip of the summer sun and pulled farther and farther south, instinctively did not pass up any of the encountered oriels. The moment the two friends arrive in Rodosto/Tekirdag (June 1911), they are on the shore of the Sea of Marmara and thus at the farthest edge of the so-called old continent. The opposite shore with Bandirma, Yalova, and farther inland Bursa, are already Anatolian, belong to Asia Minor. With swift abbreviating strokes of a soft slate pencil, LC sketched in Rodosto/Tekirdag the two

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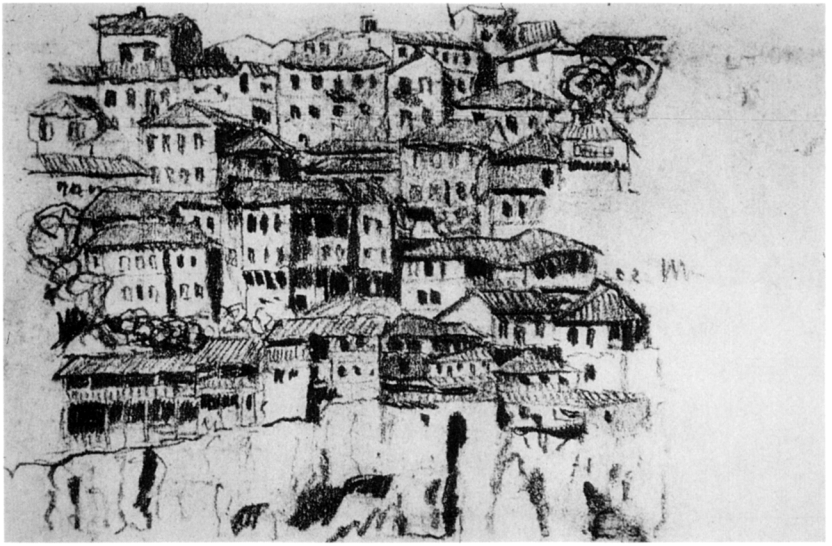
30
The oriel principle is discovered: LC's sketch of the mountain town of Turnovo (in Bulgaria) on his trip to the Orient in 1911.



new building elements that immediately and dominantly catch one's first glance (figure 31): the double oriel projection under the roof high above the garden, and the enormously long wall that encloses the garden like a dike. LC's jotted-down remark: "A type of a house, observed on the hills /?/ between Muratli and Rodosto" (*Une maison—type vu(e) sur les collines /?/ entre Muratli et Rodosto*).

It is no accident that in the first volume of the *Oeuvre complète,* LC gave prominent place to two drawings of a Turkish building with a minaret among the five pages of "Croquis de voyages et études" that he used as an introduction to that volume (figure 32). These drawings are to be found at the beginning of the second page (top left) and are not placed side by side but one above the other, which makes the comparison more pointed: two times the same thing, but not alike. At any rate, they are two wonderful, strong attempts to appropriate the new. A walled-in quadrangle has a minaret complete with a balcony all around for the call to prayer, with the corresponding mosque tucked either under the hip roof or behind the trees; on the left are a pair of spoliated columns and a couple of oriels. What made LC

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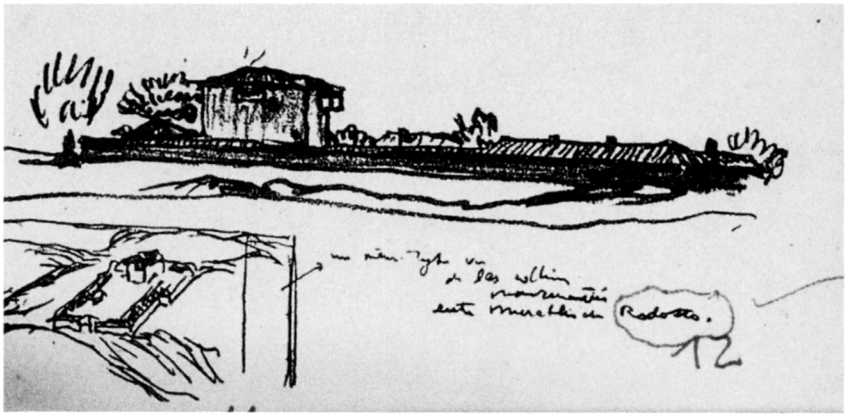
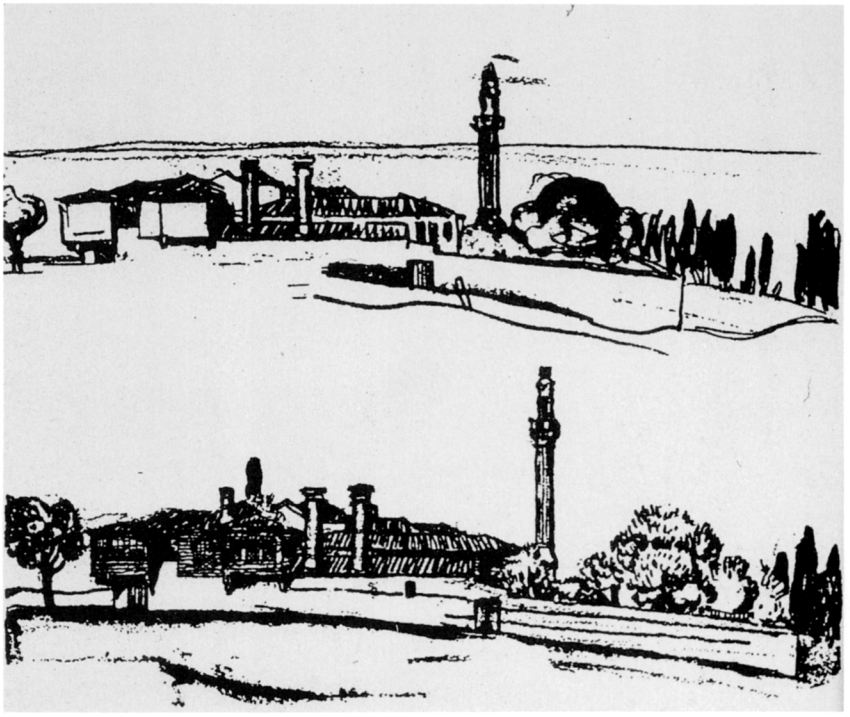
31
Arrival on the Sea of Marmara, summer 1911: an oriel at the front of the house, and enormous garden walls. Lower left corner: a bird's-eye view of the same property.



32
LC, Turkish farmstead with a minaret: he draws the same thing twice but with a different approach to the building material.



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repeat the whole? Was it on account of the oriel? Then, there is a striking difference in the way they are rendered the second time (above): now they appear white, like a gleaming piece of brickwork, and not like the wooden construction with finely chiseled detail in the lower illustration that presumably was drawn first. May we regard this transformation of that striking image—a sequence that captures the typically Turkish buildings and trees with a terseness not to be surpassed—mustn't we regard it as the first staging of LC's imperious demand that Stamboul be white? "I want Stamboul to be white, brittle like chalk, and the light falling on it to crunch as it hits it. . . . Under the white light I want a white city, but punctuated by green cypress trees."[24] (*Je veux . . . que Stamboul soit blanc, cru comme la craie, et que la lumière y crisse. . . . Sous la lumière blanche, je veux une ville toute blanche, mais des cyprès verts la doivent ponctuer.*)

As it happens, the approach from Rodosto/Tekirdag by boat to Istanbul turns out a complete disaster: "The leaden gray sky poured down, a gray drizzle turning the sea gray. The Golden Horn full of mud . . . the mosques dirty like old ruins rose sharply outlined against the gloomy wooden houses."[25] (*Le plomb du ciel laissait suinter de l'eau,—faisant la mer grise. La Corne d'Or était de boue . . . Les mosquées, sales comme un vieux mur, faisaient tache sur des maisons de bois sombre.*) Furthermore, the two travelers were driven along "like cattle" across a landing bridge to the longed-for city, where it continued to rain for four more days. "For three weeks" his heart was "heavy with disillusion." He courted the city as a rejected lover might court a beloved: "Work was the only solution and above all the will to love" (*il fallut travailler et surtout vouloir aimer*).[26]

Is this double drawing (figure 32) an example of LC's working through his grief over the fatal contrast between expectation and reality? In contrast to the gloomy oriels he wanted to set white oriels, since he wanted a totally white city that he was willing to love. Soon enough he calmed down, as this kind of impetuous appropriation gave way to a more natural, more even course of gradual familiarization. That was not hard at all, because the stipulation for a white city he voiced in reality did not originate with him but represented an acquired admiration from books, from a certain book, to be precise. Jeanneret owned Claude Farrère's novel *L'homme qui assassina,* and in it we find the lines: "Under the white light I want a totally white city,

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punctuated however with green cypress trees. . . . I have come here in order to admire these things, which I have already recognized as having these qualities."[27]

We see that Jeanneret-LC had his models also in the literary sphere, and even early on he did not shy away from borrowing; on closer examination, the result turns out both worse and better than the original passage by Claude Farrère. In a dilettante manner LC reiterated the imperious assertion "I want," but on the other hand he added something to it that Farrère himself would hardly have been capable of seeing: the comparison of the color white with brittle chalk, and the appropriate acoustic association of "crunching light."

LC wanted the pure white city, just as a dozen years later (1923), in the *maison standardisée* that occupied us above, he took the Platonically pure cell (*cellule*) as his point of departure. However, he met "soiled" reality: a city of half-dirty white mosques and "gloomy" wooden houses. Just as later, in 1923, he wanted to make the pilotis interchangeable with the cardboard walls, so now, in Istanbul in 1911, he wanted to understand not only the white mosque but also the gloomy wooden house. The fascinating motif here, as already in Turnovo and Rodosto, remained the projecting oriel structure. A bipolar story in an ancient quadripolar world city.

The oriel motif that he had made into his guiding principle already in the Balkan mountains and on the shore of the Sea of Marmara—as against his expectations regarding whiteness drawn from books—kept him all the more busy in the metropolis. For good reason, because the traditional Turkish look of a street, as it still presented itself in 1911 as a continuum, is dominated by the oriel structure (figures 33–35). LC's sketches show his visibly strong interest in this construction of the upper story jutting out as a projection (in Turkish called *cikma*). Are these inhabitants especially curious, and do they feel safe primarily in the upper story, pleased to watch life on the street from an oriel? Kümürcüoglu stresses primarily the climate as a determinant, and indeed on hot days the Turkish upper story can always be kept cool by cross ventilation, made possible by the oriel windows which help to draw inside the slightest gust of air. In upper-class housing (figures 36–38) a distinction is made between a summer residence (upstairs) and a winter residence (entresol). What all residential buildings have in common is the *avlu* (no. 3

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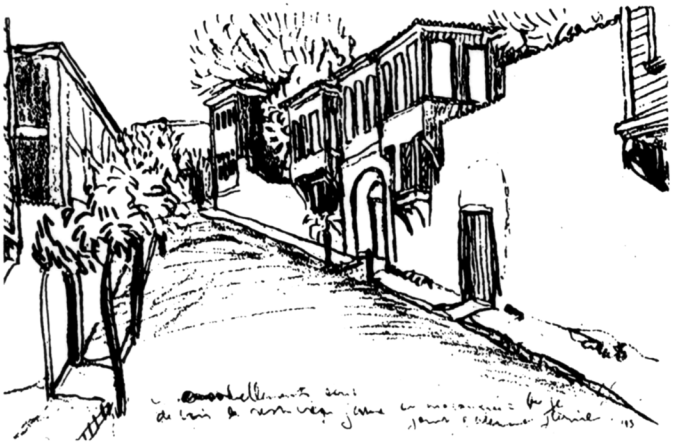
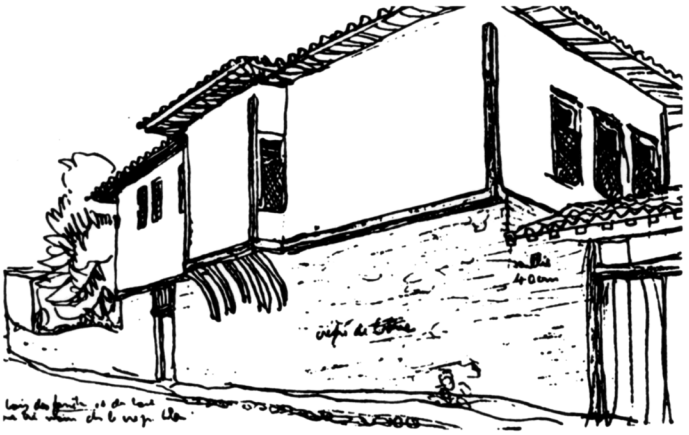
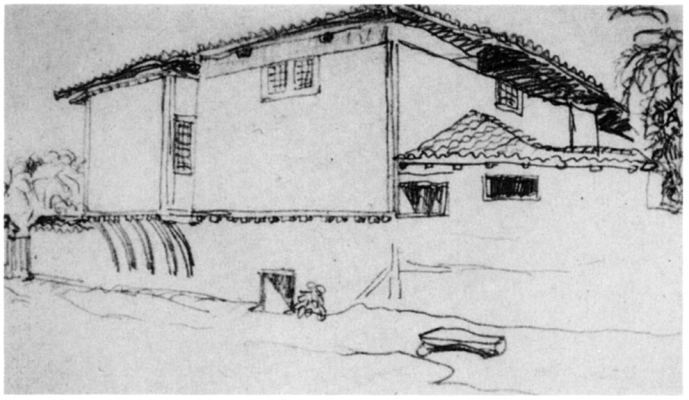
33–35
LC in the old town of Stamboul: oriel variants.







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in figure 38), a sheltered entry space resulting from the upper story projecting far out, the overhang between the pilotis and the pushed-back front wall forming a zone of half-shade.

The obsessive inquisitiveness of LC as urban explorer and draftsman was apparently unlimited, but if one traces the thread it follows it proves astonishingly systematic. He simply does not pass up anything that is remotely connected to the lure of the projecting *cikma* structure. He even discovers pigeon houses built high up against the walls and shaped as graceful miniature palaces (figures 39, 40). In both cases the soaring into the air is celebrated by projecting structures in two stages, one frontally, the other one sideways. LC draws the toylike buildings with the same diligence as buildings of normal size, fully aware that in the playful miniaturization of a building its distinctive feature is expressed more markedly.

The fact that an oriel can take up the whole front of a building interests LC as much as the borderline case of an oriel running around the whole building (figure 41). Consequently, he pulls out his camera to capture two neighboring houses that seem to be conversing through their oriels (figure 42).

If one should ask for the main characteristic of the very thing that for LC meant the culmination of his discoveries in Istanbul relating to wood architecture, I would point to two sketches, figures 43 and 44. Two buildings with overhanging oriels further dramatized by the garden walls—this is what seems to be the main fascination for the young draftsman. As in the double drawing (figure 32), he finds here a sequence, a progression, that its Turkish creators may have designed more or less consciously and that he consciously turns into an expressive composition by accentuating its features. In the first case (figure 43) we see two wooden oriels flanking both sides of a central narrower projection above the ground floor built of bricks, set in contrast to a solid, whitewashed garden wall stepped three times as it follows the rising terrain. The garden wall, with its ship's prow on the left and its extended horizontal sweep to the right, enters into a rhythmic counterpoise to the oriel above, but this effect has to be grasped before it can be seen. The frog's perspective of the draftsman is countered by the declivity of the view down from the windows, and this daring play with sharp angles is softened in the middle zone by the garden wall.

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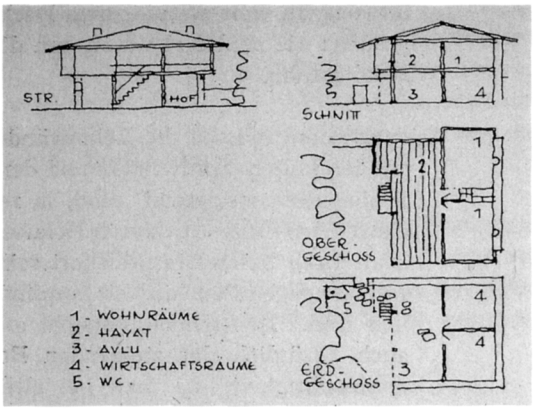
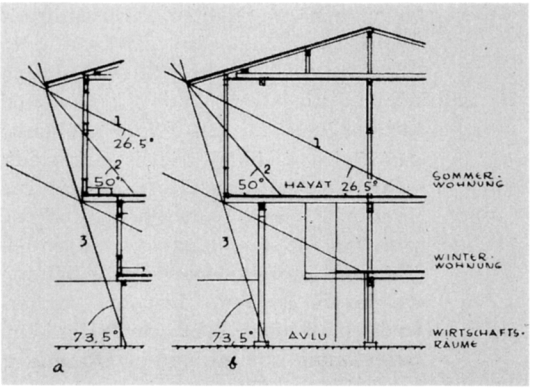
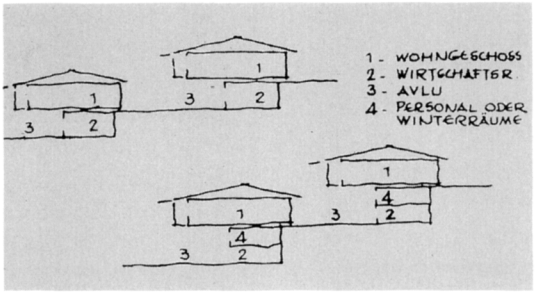
36–38
The Turkish projecting upper story (*cikma*) explained by E. A. Kümürcüoglu. (1 = summer apartment; 2 = household, kitchen; 3 = covered entry space; 4 = winter apartment.)







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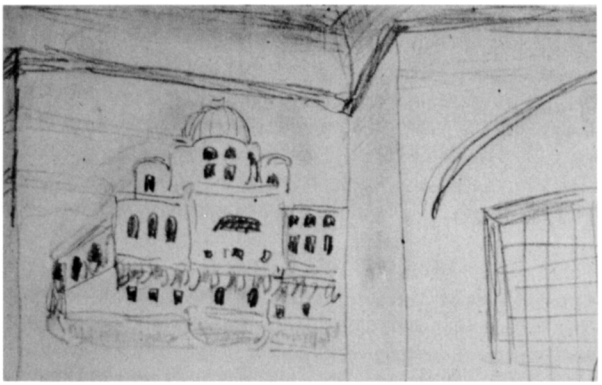
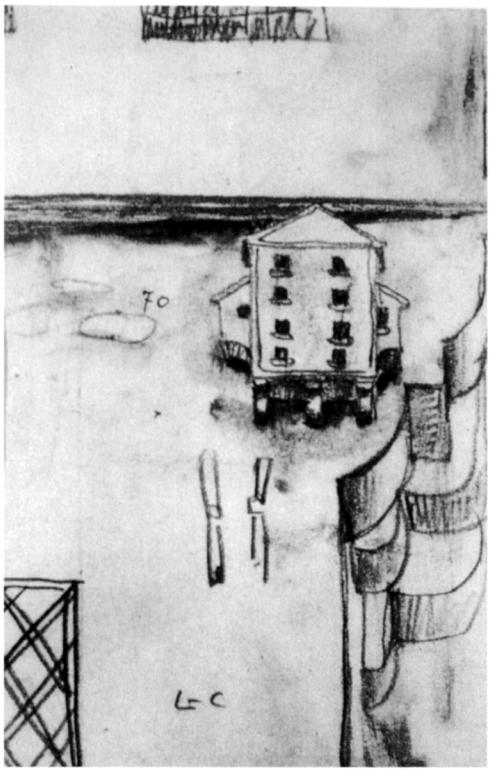
39, 40
Wandering the city, LC notes even the oriel structures of pigeon houses.





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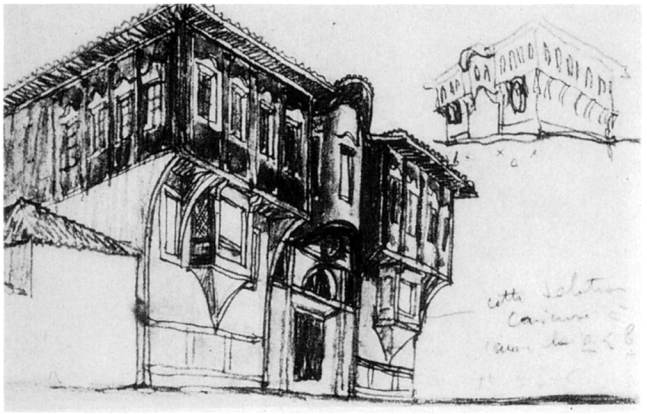
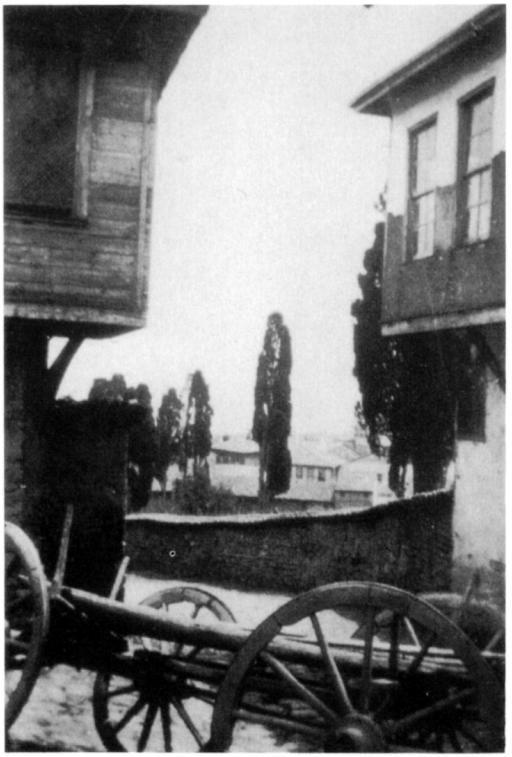
41, 42
LC draws the top-heavy example of an all-around oriel (41) and photographs two oriels in conversation with each other across the street (42).





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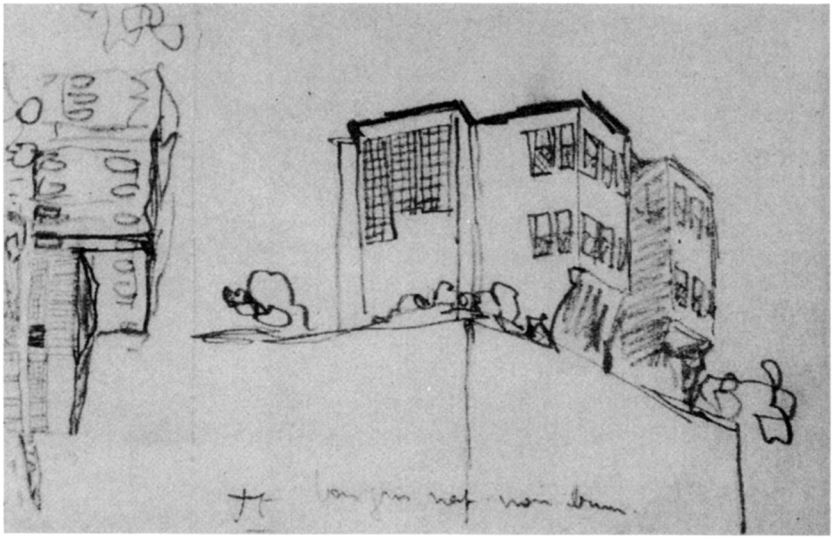
43, 44
LC discovers and celebrates two masterpieces of *cikma* construction in Stamboul, in both cases heightened by the garden wall providing a strong counterpoint. (Sideways sketch at left in figure 44: two-story house at the Golden Horn or the Bosporus with pavilion on pilotis.)



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To be sure, this is little more than an aesthetic dramatization. But in it is preserved and handed down generation after generation something obviously deriving from the temperament of its creators, for the hill of that site could have been built up in a much more unassuming, relaxed way free of contrasts. Yet a young painter and curious architect arrives from the West who apparently has waited for these kinds of effects, who instinctively seeks them and immediately recognizes them when he comes across them. New old perspectives, oblique perspectives. Let's call them *precarious perspectives,* since the sense of equilibrium in our ear is always involved in our seeing and touching, and immediately alarms us when the reliable conditions of gravitation become unstable or precarious.

The second drawing (figure 44) drives the point further. The high wall runs right next to the house and thus makes the double oriel projection above it appear all the more perilously perched and about to fall. Here the expression "skydive perspective" does not seem farfetched. On the side projection is an enormous lattice window, so extensive that it might have come from the hand of Charles Rennie Mackintosh, Henry van de Velde, or Josef Hoffmann. It apparently prompted the French travel writer Théophile Gautier to call it a *cage à poulets* (chicken coop), something noted down by LC himself and indicative of his own high degree of interest in it.[28] We take Gautier's image as a backhanded compliment, showing his strong reaction to the daring of this wooden construction that he nevertheless was compelled to relativize by irony, as it came from a totally foreign culture.

In the margin of the same page and turned 90 degrees is a sketch of a two-story house on the waterfront, with a pavilion in front that projects above the water and is borne by five pile supports. This is one of the few preserved studies by LC showing how Ottoman Turkish architecture moves from land to the water's edge, how it descends from the slopes, which favor and heighten the *cikma* effect of the oriel, to the water, which offers even more chances for mirroring and daring angles of its own. But before we focus on LC's confrontation with the Anatolian wooden house called a *yali* (summer house on the water), we must sum up his first confrontation with the wooden townhouse. Can we uphold the thesis, formulated earlier, that the Turkish *cikma* construction was one of the preconditions for the Salvation Army building (figure 45) and for the two buildings at Weissenhof (figure 46)?

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45, 46
Did the *cikma* constructions, a fascination of LC's, bear fruit years later, for instance in the Salvation Army building of 1926 (45) or at Weissenhof in 1927 (46)?

Can impressions that he appropriated through numerous sketches endure fifteen and sixteen years (from 1911 to 1926 and 1927) and bear fruit after such a long time?

By constantly sketching, LC stored his impressions incomparably more reliably than a tourist constantly taking snapshots. The elephant's memory for which LC was known was not a magical talent, but the result of his consistent visual appropriation through drawing. In addition, as became evident, LC certainly pursued the oriel motif in Istanbul systematically, but in his own buildings he went far beyond the oriel motif. He turns the Turkish jutting out of parts of a building into a *lifting up of the whole building,* which, both in the Salvation Army building and at Weissenhof, is supported in the back by a continuous wall and in front only by provocatively slender piles. Since in the Turkish *yali* we can witness exactly this step, from jutting out to the lifting up of a building leaving only one wall at the back, we are apt to benefit from taking a look at this building type.

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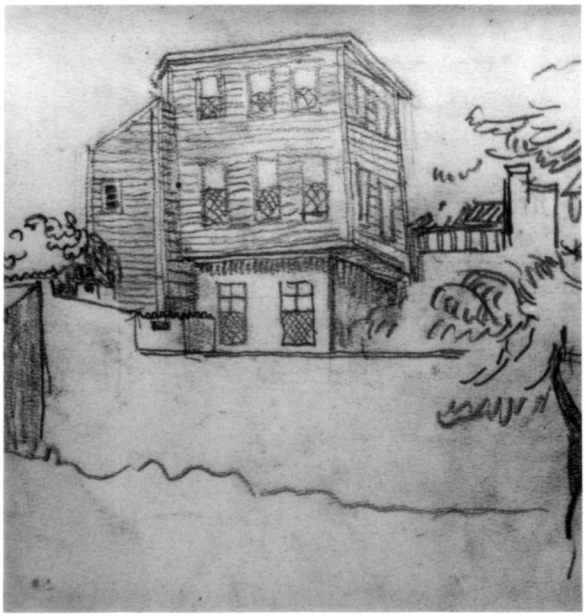
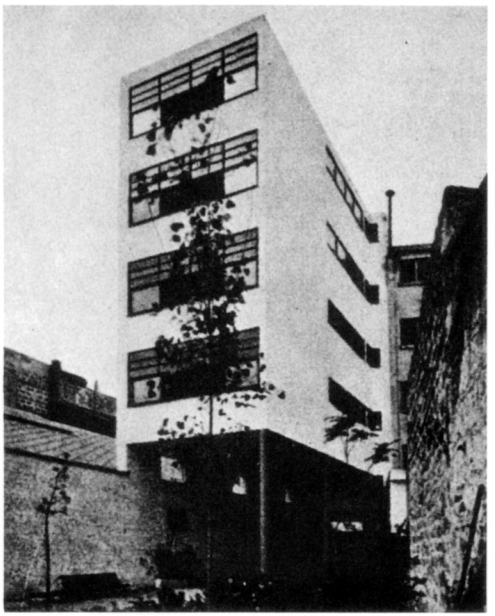
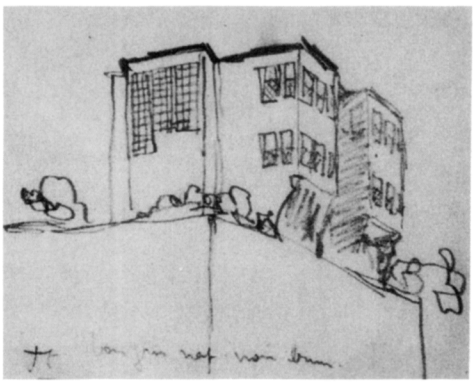
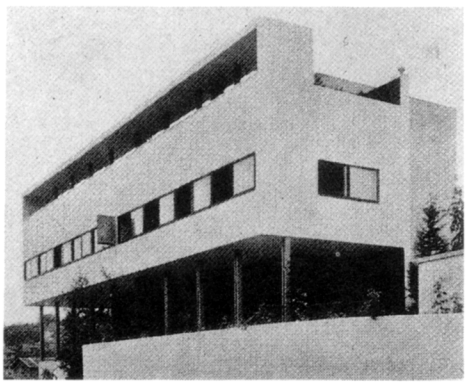




45





46

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This step from jutting out to lifting off was in fact completed in the water-related architecture of Istanbul, primarily in the eighteenth and nineteenth centuries and partly even earlier. The open question is only how much LC saw of all that, how much he was able to visit and perceive. What seem to be completely missing are sketches of views from the water or in the direction of the water. Was LC never on the Bosporus, the renowned, much eulogized watercourse separating Europe and Asia Minor? On a stay of almost two months this is absolutely unthinkable, for the Bosporus flows into the Sea of Marmara right before the city itself (figure 47), is a part and the showpiece of Istanbul. This body of phosphorescent waters, venerated by the inhabitants of Byzantium as a mystical phenomenon, kept its fame also after the Turkish conquest. At the latest from the onset of the so-called Tulip Era, which corresponds to the time of the Enlightenment, the upper classes spent the hot summer months on the Bosporus. Last but not least, this strait, geologically a fault-block depression, is so deep that the water always remains cooler than the Sea of Marmara.

On the trip with Klipstein, LC kept no diary, but he already used that famous little sketching block, fitting into his jacket pocket, that was to accompany him through almost all phases of his life: drawings, key words, addresses, and dates were jotted down in spontaneous succession *sur le vif,* together with his impressions and plans; but not the regular daily entries travelers usually write down at night. On the other hand, he kept the newspaper articles he wrote on commission from his uncle, editor of *Feuille d'Avis de La Chaux-de-Fonds,* which LC assembled and organized thematically only at the end of his life into his last—and at the same time first—book, entitled *Le voyage d'Orient.* Among the themes we find *le Danube, Constantinople, les mosquées,* and *les sepultures.* However, the Bosporus, which carries the waters of the Danube and the Dnieper out of the Black Sea, did not rate a separate chapter.

But here we get help from the *Tagebuch des Reisepartners Auguste Klipstein,* the diary of his traveling companion Auguste Klipstein that his daughters, Regula Bandi-Klipstein and Verena Wolker-Klipstein, put at my

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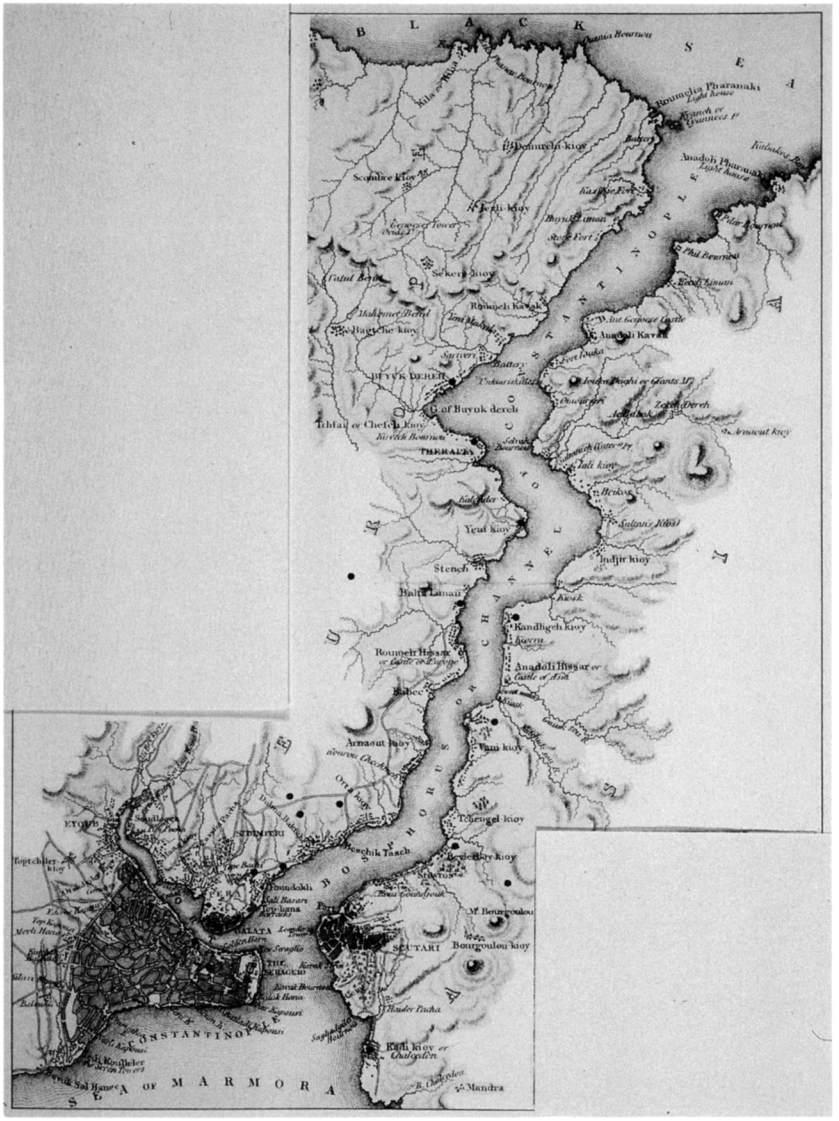
47
Map of the Bosporus, flowing from the Black Sea down to Istanbul (with the Golden Horn at the left), separating Europe from Asia. (From the monograph *Sedad Eldem, Architect in Turkey,* 1987.)



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disposal, and from which I published enlightening additional excerpts for the first time in 1987.[29] Klipstein wrote:

> Today and yesterday on the Bosporus. July 28. The stretch to Terapiwe [Tarabya] is nothing special in spite of being much praised. Kitschy, monstrous palace buildings. In contrast, the soothing restraint of the wooden buildings on the waterfront with their upper stories projecting as oriels that are connected well to the ground stories by curved wooded supports. The more we get to know these buildings the more we like them . . . Jean[neret] makes sketches. Would like to see such a house on the inside. The rooms must be of a generous size and designed to hold a lot of light. When two-storied they are not as beautifully proportioned.[30]

Thus it is the touristic fame of the region that initially unsettles the two travelers. "Monstrous palaces" are still to be found on those shores, looking like cut-rate imports from the French Riviera. Yet Klipstein immediately recognizes the contrast to the autochthonous wooden buildings, whose "projecting second story like an oriel" he cites as their most salient feature.

LC "makes sketches" (where have they gone?), the two friends' acquaintance with the structures grows, their fascination increases. Evidently, and regrettably, they see only from afar those buildings on the waterfront that promise "a lot of light" inside and altogether represent a level of building culture that supersedes the *cikma* construction of the wooden townhouse.

To build right at the edge of the water, to demarcate the fluctuations of the tides and the water level at the shore in such a way that boats can be anchored and storms rebuffed, this is one of the three or four fundamental, ever-present challenges facing architecture. It seems that the Ottomans engineered dwellings on the shore through a high continuous seawall. On this embankment perched the *cikma* construction as a bird sits on a branch. This kind of water frontage was observed with great finesse by the draftsman, painter, and builder Anton Ignaz Melling (1763–1831) of Karlsruhe (figures 48, 49), who spent two decades as draftsman, garden designer, and occasional architect for Hadidje, the sister of Sultan Selim III. His series of forty-eight drawings, called *Voyage pittoresque de Constantinople et des rives du Bosphore* (Paris, 1819), belongs to that dependable mixture of precision and artistry that marks the *védutiste européen* of those decades. LC came across

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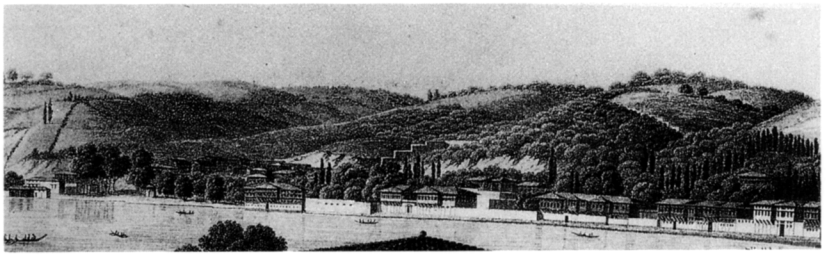
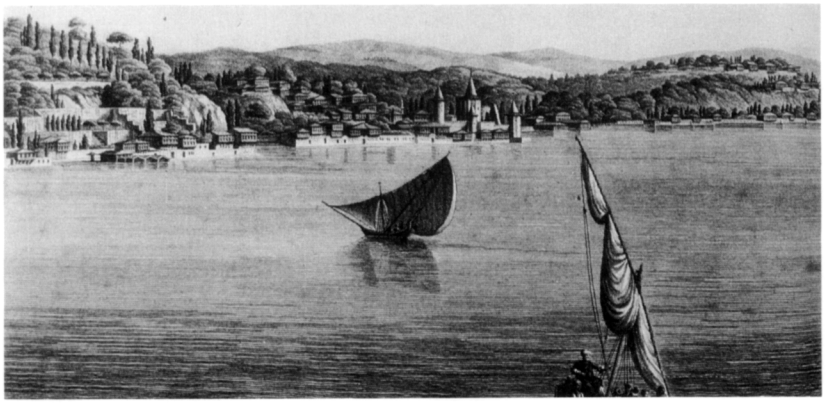
48, 49
Anton Ignaz Melling, seaside buildings on the shore of the Bosporus, two engravings from the series *Voyage pittoresque de Constantinople et des rives du Bosphore* (Paris, 1819). Compare figure 66.





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this kind of shorefront housing for the first time in Rodosto/Tekirdag and sketched it immediately (figure 50).

Next to Kümürcüoglu, the prominent Turkish architect Sedad Hakki Eldem (born 1908), researcher of domestic architecture, and his students undertook to preserve, measure, and reconstruct existing building specimens and evidence of Ottoman domestic culture. Already among the earliest examples the Eldem group tracked down is a water-related kiosk or pavilion, the Iftariye Köskü on the River Tundzha inside the palace grounds at Edirne (figure 51), dated 1663 (1074 H.). Thus the Turkish tradition of building out above water appears to be at least 300 years old, but presumably it is much older still. For, as a visitor from the West must not forget, the Islamic religion venerates the element of water to the highest degree. It is no accident that both the fountain and architecture's relationship to water have a higher priority in the Islamic culture than in the West, if we leave out of consideration the Baroque predilection for fountains in the Counter-Reformation. From this perspective it is easy to accept Eldem's supposition that in the kiosk of 1663, in the central area there must have been a bubbling fountain over an indoor pool.[31]

How one has to imagine this kind of bubbling fountain is shown by the famous Köprülü Yaliköskü (literally, "the seaside pavilion of the family Köprülü") that lies on the Anatolian shore of the Bosporus near the village of Anadolu Hisar (figures 52, 53). It is supposed to go back as far as 1699 (1111 H.) and thus would be only thirty-six years younger than the kiosk of Edirne.[32] Over the centuries the wooden building could preserve only part of its external appearance; however, now as before, what continues to captivate is the daring sweep of its jutting out above the water (figures 54–57). If we check the real extent of the projecting distance in the ground plan, where the supporting wall at the water's edge is indicated by an oblique dotted line (figure 57), we see that only two of the three wings off the central area are hanging directly over the water and noticeably less than halfway out. Yet the suggested overhang is much greater. Our expectations, dependent on the effects of gravity, are strongly jolted even by the relatively small distance from the water surface and by the vertical embankment wall.

The reconstruction (figure 56) allows for a much more generous scale of the roof design, and above all it recalls how exquisitely the double light

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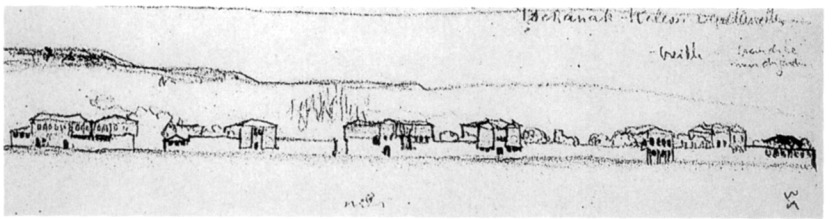
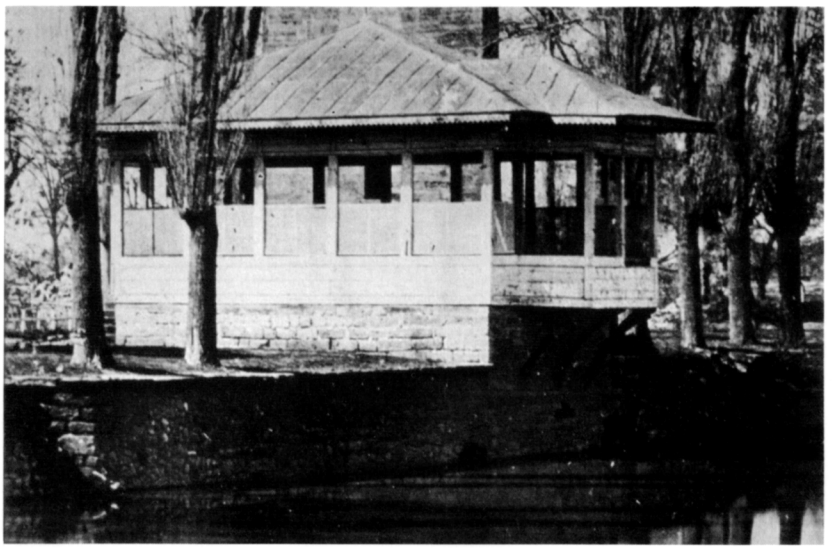
50
LC, travel sketch of Rodosto/Tekirdag on the Sea of Marmara, 1911: first encounter with Turkish seaside architecture.



51
An early, water-oriented *kösk* or pavilion: the Iftariye Köskü in the palace grounds at Edirne.



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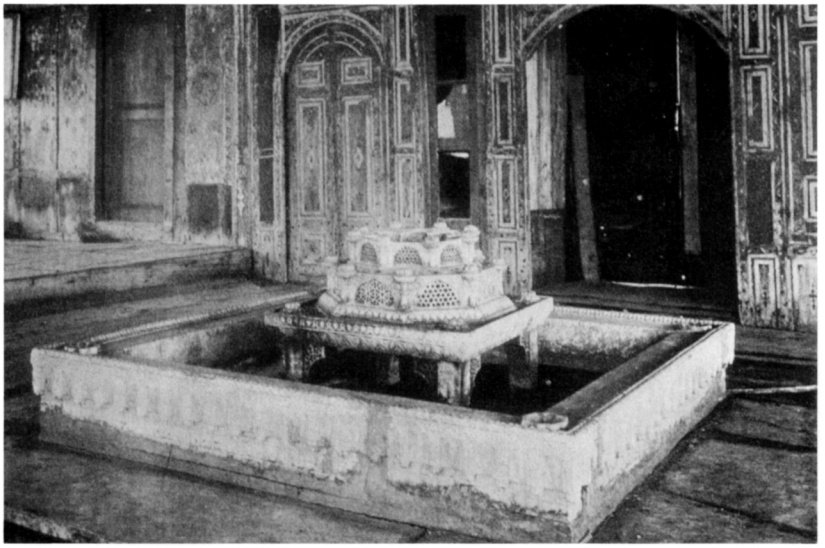
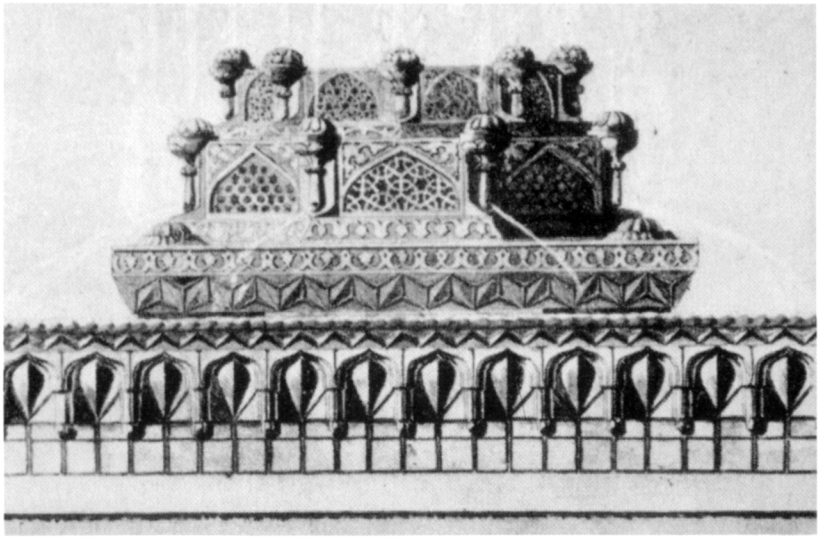
52
The bubbling fountain in the central space of the Köprülü Yaliköskü on the Bosporus.



53
Detail drawing of the crown of the bubbling fountain in the Köprülü pavilion.



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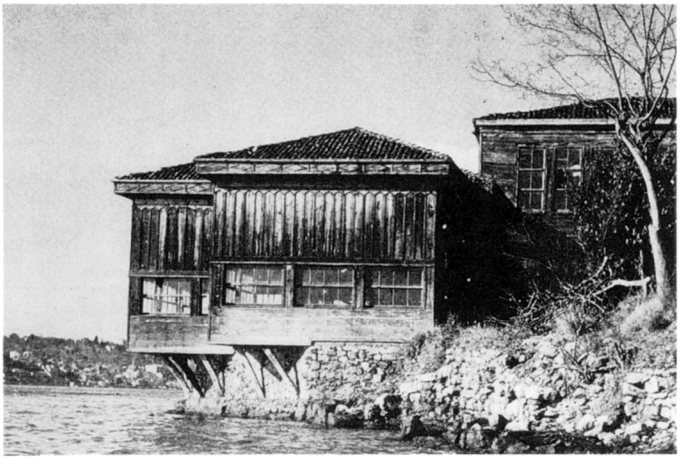

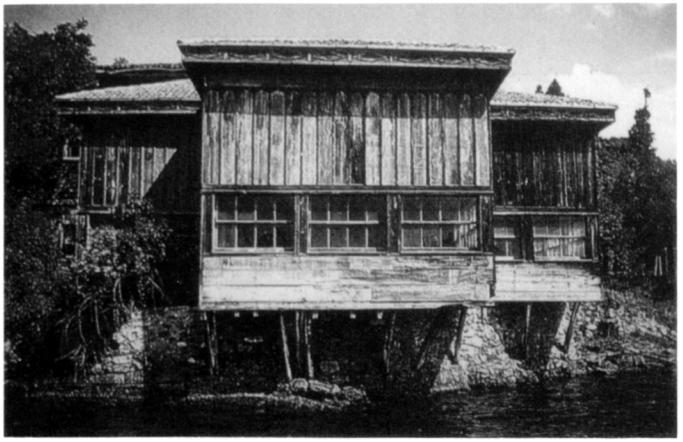

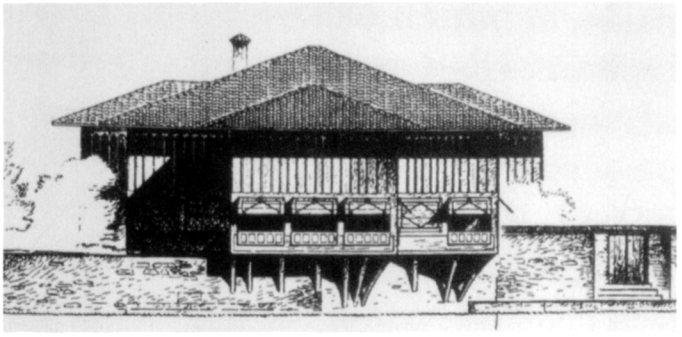

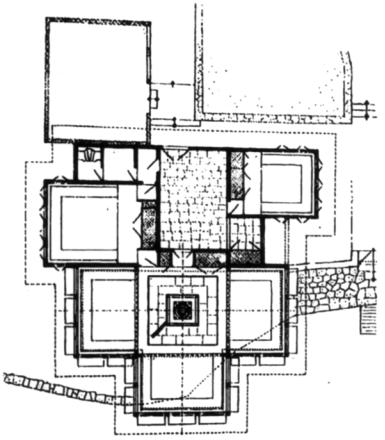

54–57
The Köprülü Yalikköskü near Anadolu Hisar on the Bosporus. Exterior to the west (54) and toward the water (55) in the present state; reconstruction of the original waterfront (56) and of the ground plan (57).

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(from the sky and from the water's reflections) could be apportioned in such intentionally exposed space; the wooden shutters can be raised from above as well as from below, and can be fixed at many different angles. How this art of controlling the amount of incoming light and air was instrumented in detail is shown in an engraving by Melling (figure 58). A necessary precondition for this staging of daylight is the long window that dominates the Köprülü kiosk as a matter of course; and this certainly means a low-positioned long window not at the head but the midriff of the facade. If one visualizes the height of the facade as divided into four horizontal bands, then, counting from the top, it is the third band down that is designed as a continuous window. The upper wall section remains unbroken by any window openings, providing a high, voluminous, shaded interior and thereby also an impression of prevailing coolness.

Long windows? We use here a concept from LC's missionary vocabulary from the "5 points," where the fourth point is devoted to the long window, the *fenêtre en longueur.* The two travelers in the Orient must have come across this leitmotif of the language of Ottoman wooden architecture again and again, especially on the steamboat system that was as well organized as

58
Handling of air currents and light by the Turkish folding shutters (detail from A. I. Melling's engraving *Embankment-Type Dam at the Belgrade Forest*).

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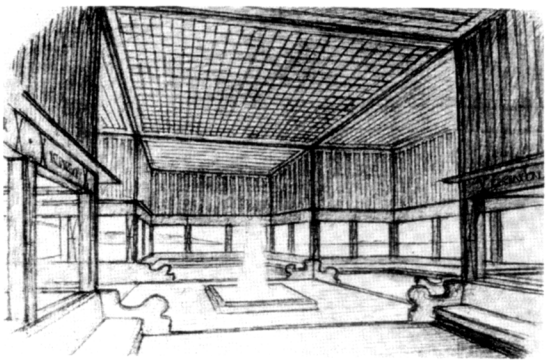
that in Venice. We can assume with great probability that they undertook such steamboat rides accompanied by LC's continuous sketching.

The interior of the Köprülü seaside pavilion was decorated with richly painted paneling. If we want to get an idea of the spatial effect of the low-positioned but unbroken belt of windows, a sketch by Eldem can be very helpful (figure 59). In the Taslik coffeehouse in Kanlica, Istanbul (1947–1948), Eldem built (in his words) "almost a replica of the Köprülü Yali,"[33] as a kind of proof that the old Ottoman motifs still continue to be viable in the Republic of Turkey today (figure 60). The interior space derives its dignity from the fact that it admits, almost in a modern way, a large influx of light, but, in a way much more disciplined than Western modernism, it does not allow any illusion of something like total light; that is, it strictly limits the window openings and leaves the upper half of the space in soothing darkness.

As noted, Klipstein documented that on at least two days LC was sketching on the Bosporus. Thus far only one drawing has surfaced that clearly belongs in this framework (figure 61), evidently drawn on the boat from a distance. What kind of building does it represent, a *yali* or a *kösk?*

By comparing it to two still-extant houses on the waterfront, the white *yali* of Beylerbey and the red *yali* of Kanlica (figures 62, 63),[34] we should find a near enough answer. Looking at LC's drawing jotted down with a few energetic shading strokes, we see on the left a building jutting out above water

59, 60
Sedad Eldem, Taslik coffeehouse in Kanlica, Istanbul, 1947–1948, "almost a replica of the Köprülü Yali."



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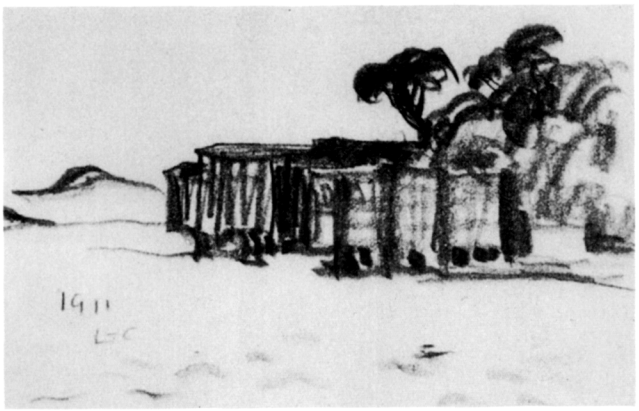
at the first-story level. Keeping in mind that these two *yali* differ from the *kösk* type in being two-storied and jutting out at the upper-story level, it seems that LC sketched a *kösk* after all, though without any suggestion of a long window. All the more pronounced is its jutting out directly above water. In the second building in LC's drawing, on the right under the crowns of some trees, it is possible to see a suggestion of a projecting middle oriel and two wings on each side. Comparing LC's drawing with the side view of the Köprülü *kösk* (figures 54 and 55), we can read it in two ways: first, the building on the right appears as an overextended, strongly articulated facade on the waterfront; and second, the part under the trees on the right appears as a side view of a building on land. In that case it would not project over the water, and the black square spots at its bottom indicate its overhang on pilotis on land. Obviously, we cannot be certain what building LC drew. What is certain is that he conjures up with a few trenchant strokes a kind of jutting out directly over water much like that of the Köprülü *kösk*. With a first strong hunch, combined with the intriguing vehemence of the strokes (half a failure and half a boycott of clear readability), a motif is palpably caught that is to codetermine the future of the great renovator and also arouse the sharpest attacks to be heaped upon him.



61
The only known drawing by LC of a *yali* at the Bosporus. (Signed and dated at a later date by LC; drawing FLC 6106. The upper portion includes a sailboat, left out here.)

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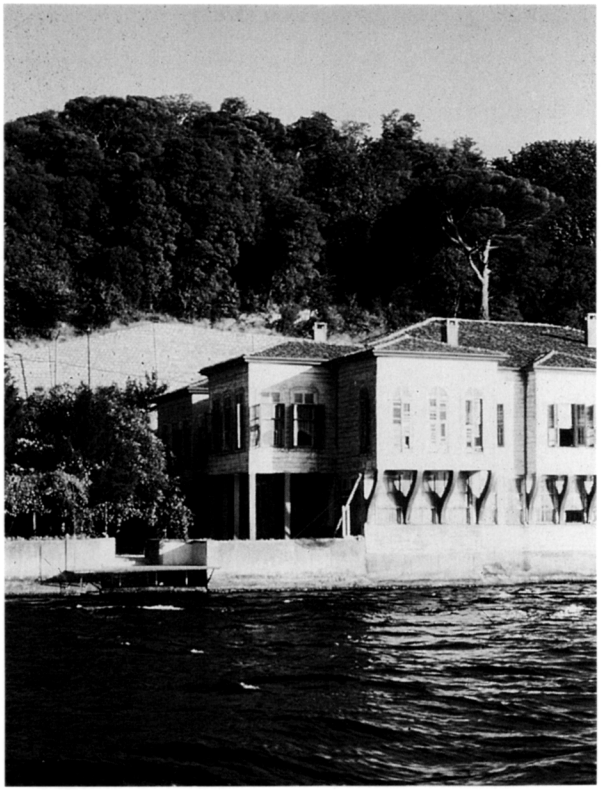
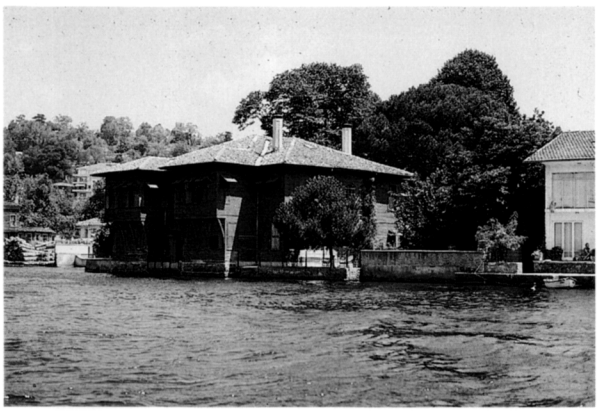
62
The white *yali* of Beylerbey.



63
The red *yali* of Kanlica.



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In his glossary Kümürcüoglu defines the concept *kösk* as a "garden house open on all sides."[35] In a monograph on Sedad Eldem we read: "As a free standing structure or as a wing of a larger house, the pavilion serves for limited times for receptions or hunting parties."[36] In contrast to the *yali,* that is, "the house directly on the water," one does not reside in the *kösk,* as it is reserved for social occasions. A building genre not determined by daily functions, it gives free rein to playfulness, allowing an architect to let his imagination run riot.

The white *yali* of Beylerbey (figure 62) shows on the left two oriels on land that project twice as far as the others and therefore cannot be buttressed by angled beams. Their place is taken by pilotis, by unadulterated pilotis, if I may say so. It is a kind of pile support in a non-European context that does not have to maintain a grand column tradition; it is not obligated to the European Renaissance or Greek antiquity. Let's imagine a European architect, for instance an Italian any time between 1450 and 1850, having to deal with the task, simple in itself, of buttressing: he would at least go through the motions of trying to conjure up the similarity to a column.

When these rooms over pilotis serve as a reception hall they are called *kösk.* A much more luxurious building is also designated as a *kösk,* the Sofa Kösk in the park of the sultan, the Topkapu Saray in Istanbul (figure 64). The same schema, but this time complete with the illusion of columns? We cannot deny that in the eighteenth century (the date of the Sofa Kösk is 1752), a lively two-way exchange of forms of style begins with the West, and thus around 1750–1760 in Paris a veritable boom of "Turkish fashion" develops, above all in garden architecture. Even those who see Western influence in the capital of the Sofa Kösk, and are not put off by the overly high socles of the columns, have to admit that the freedom to play with the eventual important motifs and the inventiveness it evidences are admirable.

This inventiveness put the Ottoman architects also in a position to develop the functionally unfettered pavilion genre with astonishing ease and elegance. We follow next how they approached it on the one hand by way of reduction, by looking for the simplest solution, and how on the other hand

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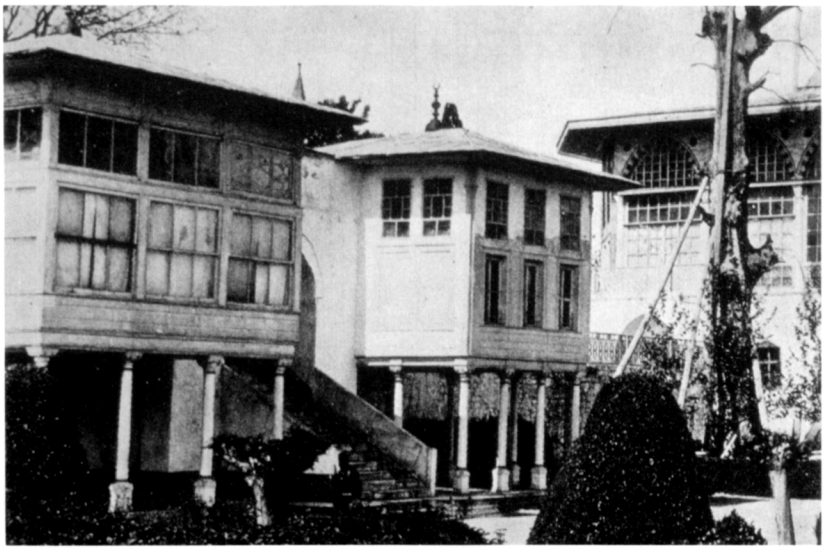

64
The Sofa Kösk in the park of the Sultan's palace (Topkapu Saray) in Istanbul.

they attempted to master the amplitude and intricacy of the resulting problems by means of cumulative solutions.

First let's call to mind the pavilion of the early Ottoman period: an umbrella-like roof on pilotis that generously covers the assembly place beneath (figure 65). The layout of the windows and doors makes their relationship to the central staircase a kind of denial of or even a countermeasure against symmetry. Thus it indicates the fact that in this culture the system of support and the system of enclosure are conceived as independent of each other.

The most extreme simplification of both systems was reached in the seventeenth century. The symmetrical umbrella roof is supported by simple square posts, and the shell is subdivided into panels that can be raised and fixed in many different angled positions from both above and below. Anton Ignaz Melling described thoroughly and ingeniously the small coffee pavilion above the Bosporus that seems at first only an architectural bagatelle (figure 66). He must have been aware, however, that this little tempietto for view and conversation holds more. To be exact, it holds less; that is, the minimum from two neighboring but strictly separate systems.

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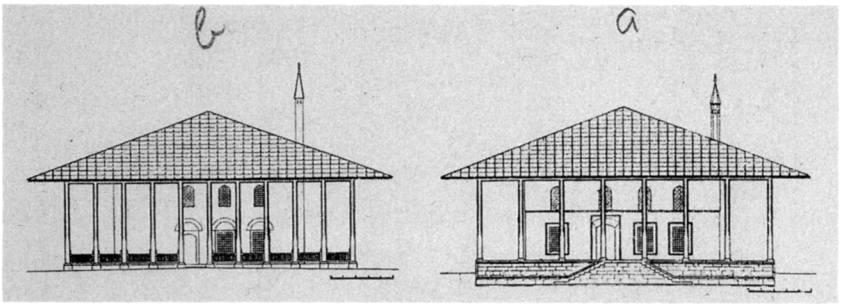
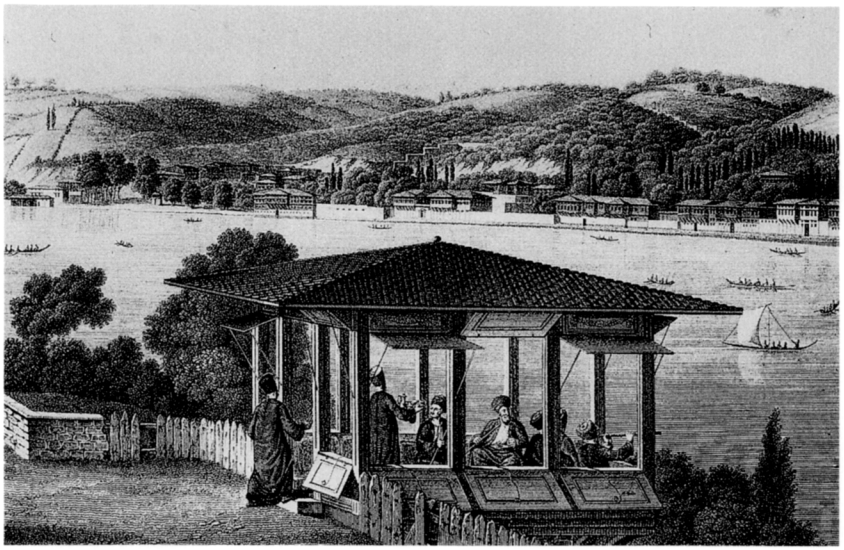
65
Two early Ottoman pavilions from the fifteenth century, in Edirne (left) and next to the Topkapi Palace, Istanbul (right).



66
Coffeehouse *kösk* above the Bosporus, seventeenth century (engraving by A. I. Melling, 1819).



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In the summer, a completely transparent framework can be covered and darkened by shade to many different degrees by means of the movable paneling. In the winter it is a closed box, as flimsy as if made out of cardboard or paper. A house of cards, and that is precisely it, with folding walls. A Western carpenter and cabinetmaker can hardly imagine such a light, flexible structure, so easy to piece together and take down; and by the way, so easily turned back into a cube. Melling, active about 1800, must have realized this fully, otherwise his *Hommage à une bagatelle* is hardly thinkable. To put it a bit differently, he discovered the matchbox in the hierarchy of Ottoman architecture, and everyone is asking, who invented it and when?

The next obvious idea, to stack these kinds of boxes, was not passed up either. The Bayaldim Kösk at the palace of Dolmabahce was erected as a double-decker (figure 67). With the two elements of the small coffeehouse, the wooden post and the wooden panel, was built also the richest and most sophisticated of all known remaining *kösks,* the Bebek Köskü.[37] Sultan Selim I (1467–1520) owned a garden with a *kösk* on the Bosporus, on the European side, near the village of Bebek, approximately at the same altitude as Anadolu Hisar on the Anatolian shore where the Köprülü *kösk* is still preserved today. It is known that between 1725 and 1726 a new water pavilion was erected "under the influence of the prominent architect Ibrahim Pasha."[38] Half a century later, in 1784, a complete renovation was needed, and that is recorded in an engraving after Choiseul Gouffier, later worked over by Jouannin (figure 68); its architect is unknown. The jutting out of the middle tract demands a protruding curve in the embankment platform. Viewed by itself, the ground floor of the middle tract corresponds to the small coffeehouse on the hill (figure 66). Here too the support system and the enclosure system are clearly separated and reduced to the greatest simplicity. Here as in the coffeehouse, Mies van der Rohe's "less is more" is anticipated. What is conspicuous is the long, monotonous, continuous seawall on which the *kösk* sits. And as far as the upper stories are concerned, no less conspicuous is the full transformation of the surfaces fronting the water, also of those on the building's sides, into manifold windows. Again we think of Mies: the facade as a glass curtain! The band of long windows has turned into wall-size window surfaces, and they become subject to an overexposure to light as later produced in Western modern architecture. But there is a difference: all

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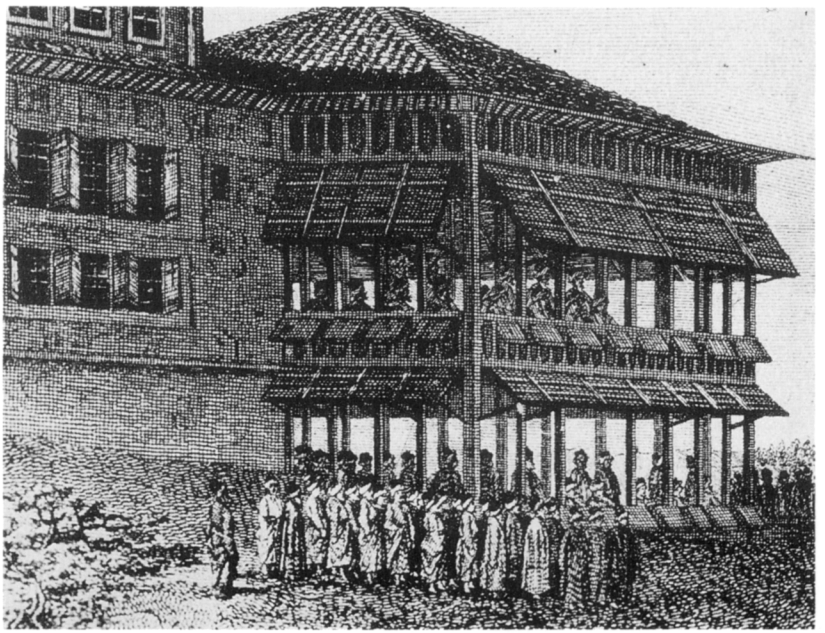
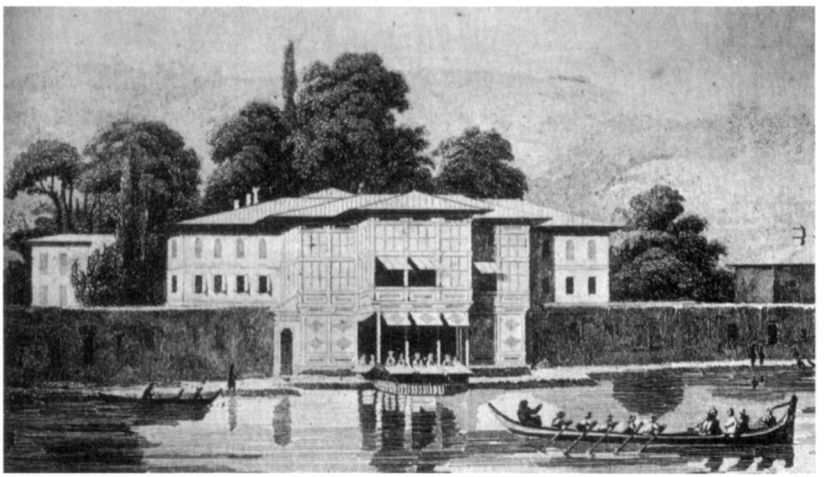
67
The pavilion as a double-decker: Bayaldim Kösk, Dolmabahce, Istanbul.



68
The Bebek Köskü in its third version of 1784 (engraving by Jouaunin, 1850).



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Turkish windows are covered by the flexible, adjustable wooden panels whose different angles up and down guarantee the enjoyment of light and shade on long summer days.

Since we are dealing in figure 68 with a building of 1784, it seems apt to refer to another import of Turkish ideas into the West that bore fruit in the same year. The French Revolutionary architect Etienne-Louis Boullée, who in his early work already reacted to the Turkish style of Parisian architects under Louis XVI, designed in 1784 the work that, reviewing his whole career, he considered his main achievement, the spherical memorial for the natural scientist and philosopher Isaac Newton.[39]

Boullée's self-appointed task in this memorial was to set before the human eye "the exquisite perfection" (Kant would call it *Vortrefflichkeit*) of the architecture of the universe discovered by Newton. The interior design of the memorial's globe was intended to convey a concept of the cosmos in the sense of a model as we understand it today (figure 69). As it happens, there already existed at that time an architectural form that represented the heavens through the medium of painting, but it was to be found at the limit of the European range of vision, and in the apparently farthest-removed architectural genre, the Turkish bath. The Turkish bath had no window openings on the sides, only a skylight through which the light poured through tubelike conduits from above. Since they were located in the ceiling, these conduits tended to be shaped as sun, moon, and stars. By "star" is meant (as customary in children's books today) a five- or six-pointed shape. This kind of building (in Turkish, *hamam*) is represented in Johann Bernhard Fischer von Erlach's *Historische Architektur* (Leipzig, 1725), in the third book, which is devoted to the "buildings of the Arabs and the Turks" but also to "Persian, Siamese, Chinese, and Japanese architecture." The illustration shows "an Imperial bath not far from the town Offen in Hungary" (figure 70), an installation for the troops of the Turkish sultan who ruled the Balkan region for a long time, occupied Hungary for a while, and threatened to capture Vienna.

Could Boullée, who drew his Newton memorial in 1784, have seen Fischer's book on historical architecture of 1725 (which, by the way, like modern architectural books, was published in two languages, German and French)? The inventory of Boullée's private library does not refer to Fischer von Erlach, although it mentions Tavernier, whose *Six voyages en Turquie,*

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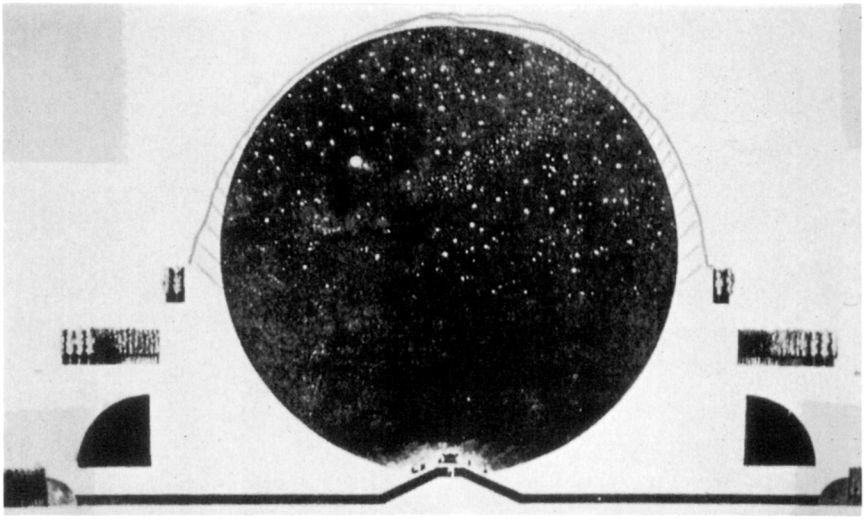
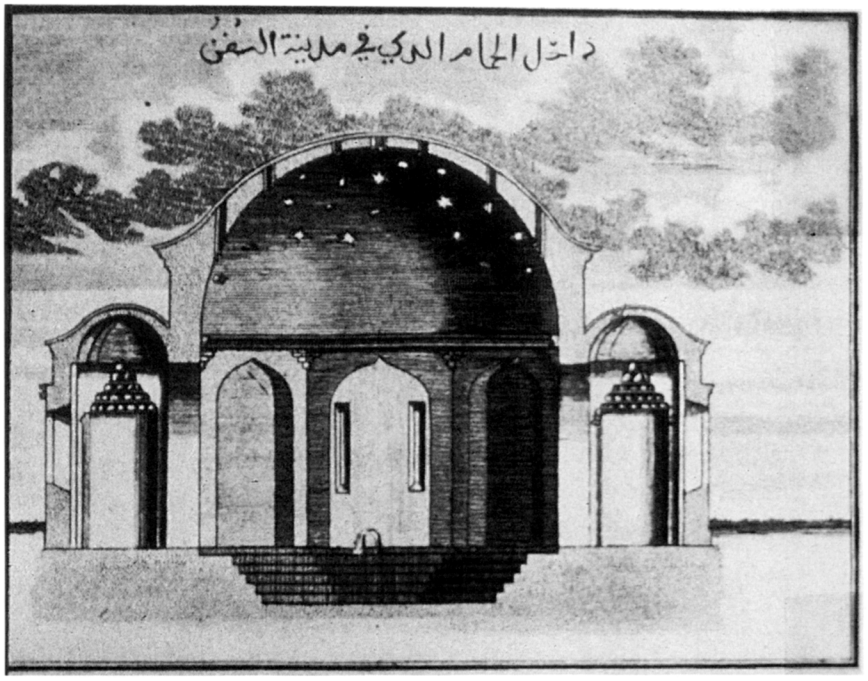
69, 70
Etienne-Louis Boullée, design of a cenotaph for Isaac Newton, 1784 (69); Turkish bath (70), after Johann Bernhard Fischer von Erlach (*Historische Architektur,* Leipzig, 1725).





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en Perse, aux Indes belonged to the travel literature very popular at that time. Tavernier precisely observed and described the "starry heavens" of the *hamam.* Thus it is easy to imagine that, at least through Tavernier and perhaps even through Fischer, Boullée acquired an exact idea of starry heavens represented in the *hamam.* If this is the case, his inclusion of the firmament in the Newton cenotaph would be an appropriation of the Turkish tunnel construction, and the new, specifically Newtonian aspect would lie in his substituting circles of different sizes for the pointed star shape.[40]

But let us return to the Bosporus, to the third version of the sultan's pavilion of Bebek (1784) that anticipated Mies van der Rohe, and that remained intact only for the short span of twenty years. By 1800 repairs were again urgently needed; these were connected to a remodeling that produced a fourth version of the building, of which A. I. Melling made a visual record (figure 71). This version must have been completed in 1803, because Melling left Istanbul definitively in that year, and his drawing of the Bebek Köskü, done in the summer light at midday, belongs to his last accomplishments in the service to the sultan. This drawing was published as plate 30 of his *Voyage pittoresque;*[41] it amounts to the actual rescue of the building's memory, since this was permanently destroyed in 1846.

This fourth version of the Bebek *kösk* from roughly 1800 until 1803, if viewed against Western architectural history, can be said to achieve a transformation from anticipation of Mies to anticipation of LC. To be sure, the support system is not incisively changed here, but on the ground floor it is emphatically laid open. The now *freestanding pilotis* in important locations are doubled or even trebled. In other words, quite in the sense of the Sofa Kösk in the palace garden of Topkapu (figure 64), the outer space floods the space under the upper story—here, however, not from the ground but *from the water surface* beneath it, making the upper story look raised up in the air. The renovated *kösk* still stands on the embankment wall parallel to the shore. But now, in contrast to the third version (figure 68), that wall is reduced in height, on the left and right lowered at an angle, and crowned with a lattice that reaches as high as the upper story. With its added clusters of four slender lattice posts each, it picks up the elegance of the pilotis of the floor at water level and repeats and underlines it.

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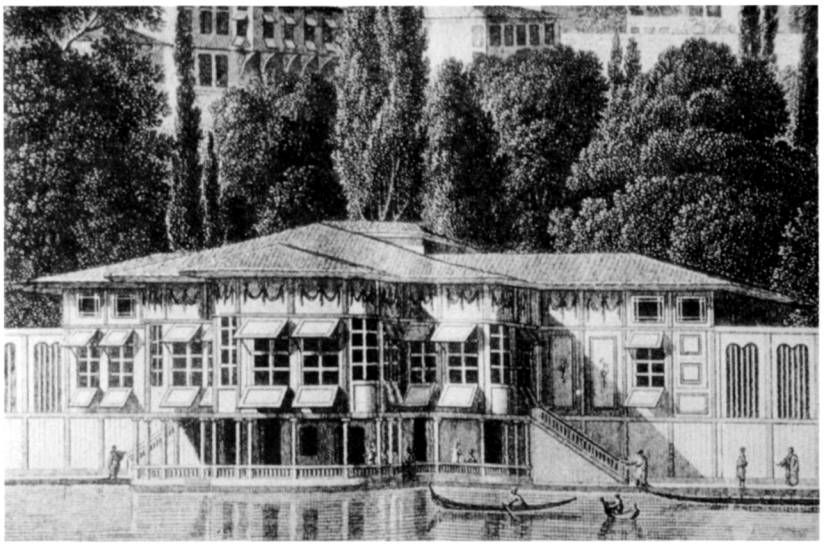

71
The Bebek Köskü or Sultan's pavilion at Bebek on the Bosporus in its fourth version of 1800–1803. Middle part of an engraving by A. I. Melling, 1819.

Certainly, from this latticework and from the rounded joints and scalloped window frames emanates a would-be rococo air. A concession to Western rococo or a late echo thereof? Melling and his collaborators on the *Voyage pittoresque* did not see it this way. According to Jacques Perot, the texts accompanying the forty-eight pages of illustrations were first sketched by Melling, then were improved in writing style and content by Melling's traveling companion, Joseph-Antoine Cervini (though a native of Lorraine, Melling grew up in Karlsruhe and spoke and wrote French imperfectly). Finally, Pierre Louis de Lacretelle, then already a member of the Académie Française, took on the responsibility of editing the texts. These may be superfluous details, but they are material proofs of how vivid Western interest in Turkey was about 1800. In particular, France, alerted by Bonaparte's Egyptian campaign between 1798 and 1801, started to develop an active interest in the *Proche-Orient* that was as passionate as it was rationalistic and scientific.

The text first deplores that the Bebek *kösk* corresponds so little to Western expectations: "It does not show the proportion of artful architecture: architecture's hand gave it neither the symmetry that conforms with taste nor the air of solidity that gives dignity to a construction, for it [the *kösk*] suggests the idea of the charming for past generations or it anticipates what

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will occupy a future generation."[42] (*Il n'offre pas les proportions de la belle architecture; la main de l'art ne lui donna ni cette régularité qui s'accorde avec le goût, ni même cet air de solidité qui fait la noblesse des constructions, parce qu'il éveille l'idée du bienfait des générations passés ou celle de la reconnoissance d'une race future.*) A highly convoluted sentence, at least for today's reader. With regard to proportion, and also to symmetry (*régularité*) and solidity, the building fell short of Western expectations. Then follows the unexpected assertion that something like that may have pleased former generations, or is an anticipation of a future generation. In the middle of a pretentious sentence turns up a prophetic statement.

The sequel confirms this impression: "However, it pleases the eye through its building genre as mixed as it is bizarre. If we look for a single characteristic that predominates in all its parts, it would be its *lightness,* an ephemeral quality that attaches to Turkish buildings and that derives from the Turkish way of life." (*Mais par son genre mixte et bizarre, ce bâtiment plait à l'oeil. S'il est un charactère qui domine dans toutes ses parties, c'est la* légèrté, *empreinte éphémère qui portent les constructions des Turcs et qui tient à leur moeurs.*)

That way of life, not specified here but vaguely referred to, is the nomadic Turkish life on horseback. If we recall the expression "anticipation of a future generation," it sounds as if the writers suggest that a new, modern way of life is to be expected that once again will aim at lightness. Lightness in architecture here signifies a specific way of handling a wooden frame support and wood paneling.

Melling, by the way, was eager to give to his description an anecdotal, colorful actuality. The text indicates that the richly decorated rudder boat on the right in the picture is the boat of the French ambassador, because in summer the Bebek *kösk* was assigned to the Minister of Foreign Affairs for conferences with dignitaries of foreign nations. Melling had good reason to put the ambassador into the picture, as the French diplomatic corps at the royal court had intensively and constantly supported Melling's depictions of Turkish places and substantially participated in the brilliant edition of the *Voyage pittoresque.*[43]

But what part, if any, of all this could Klipstein and LC really have come across and noticed in 1911?

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The Bebek *kösk* is called fragile; it was torn down in 1846, sixty years before the arrival of our two travelers. What is preserved is its memory captured in Melling's engravings. This edition was well known and highly esteemed not only in cosmopolitan Paris; the educated class in Istanbul feels honored even today by the high degree of exactness and awe exhibited by Melling toward its monuments. Did William Ritter, a connoisseur of the Balkans and devoted older friend of LC, own separate pages of Melling? Did LC see them later, during his first stay in Paris?

For the time being these questions remain unanswered. But the diary of Auguste Klipstein notes at least two days on the Bosporus (July 27 and 28, 1911), and it confirms the fascination of both friends for its sites. It also confirms that their first impressions, even though they may have remained vague, led them to correct suppositions in most matters, so that we are able to present them here concretely, thanks to the broader information we have available to us.

As a first possible common denominator: of the "5 points," which LC published fifteen years later, the Turkish wooden architecture anticipates as many as three: points one (*les pilotis*), four (*fenêtres en longueur*), and five (*la façade libre*). The result of this anticipation comes close to what LC will later call *la boîte,* the box. In Melling's engraving of the small coffeehouse (figure 66) we observed the foldable, easy-to-open box, and in the Köprülü *kösk* (figures 54–57) and the Bebek *kösk* (figure 71) the *raised box,* a preliminary step to the *boîte en l'air* that floated before the mind's eye of the creator of the Villa Savoye.

All this is also directly connected with the woodworker's craft. Because Turkish culture persisted for a very long time in building in wood and executed only religious buildings (mosque and medrese) in stone, it transferred the principles of woodworking into architecture much more easily than the West. The pilotis remains a pilotis, it does not become a column. The table top or cupboard panel becomes a wall of panels, or a window with foldable shutters. In short, the Turkish wooden house, especially the pavilion, is nothing but an enlarged, extended piece of furniture.

The modern movement also had its cabinetmaker, who derived one of its pioneering works, the Schröder House in Utrecht (1924; figure 72), directly and purely from the praxis of cabinetmaking, thus turning it into a

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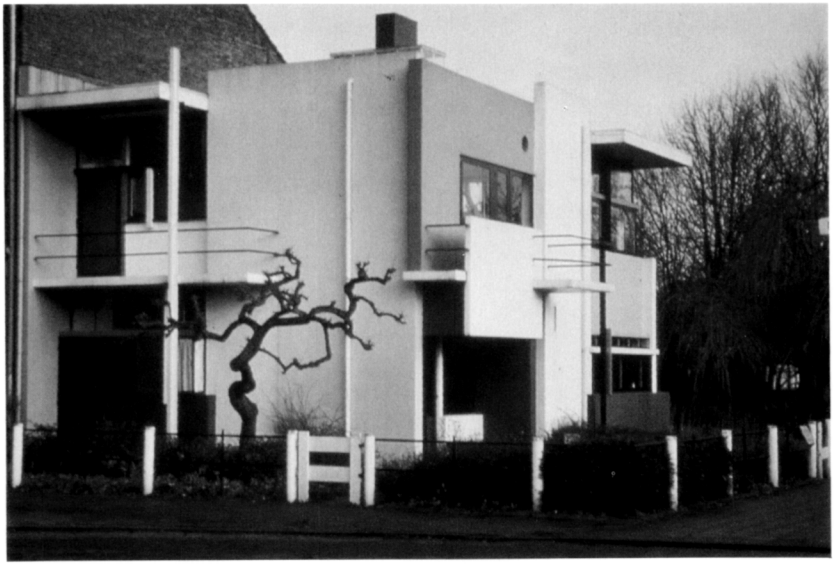
72
Gerrit Thomas Rietveld, Schröder House, Utrecht, 1924.



determinant of his own oeuvre. This was Gerrit Rietveld, a Dutchman, who was born one year after LC and died one year before him (1888–1964). Rietveld's stiff, free-hanging, or projecting slabs of concrete, which decisively shaped the look of the modern house, are not thinkable without the boards and panels from a woodworker's shop.[44]

When a housing culture is so clearly defined, persisting even in a big city like Istanbul, to judge from Melling's engravings of ca. 1800, one can suppose that a common root of its different house types can be found. I use two examples to show how this root might be retraced. The first example is found in a fresco from the end of the eighteenth century in the *yali* of Sadullah Pasa, and was justifiably included by the research group headed by Eldem in the volume *Köskler ve Kasirlar* (figure 73). The fresco describes somewhat awkwardly the *kösk* of Serefabad in Üsküdar, which impresses us through the directness of its frontal rendering as a pavilion *mis à nu.* The thick pile-work rising from the water appears as the main motif, to which the projecting *avlu* constructions with their freestanding pilotis respond as a secondary motif deriving from it.

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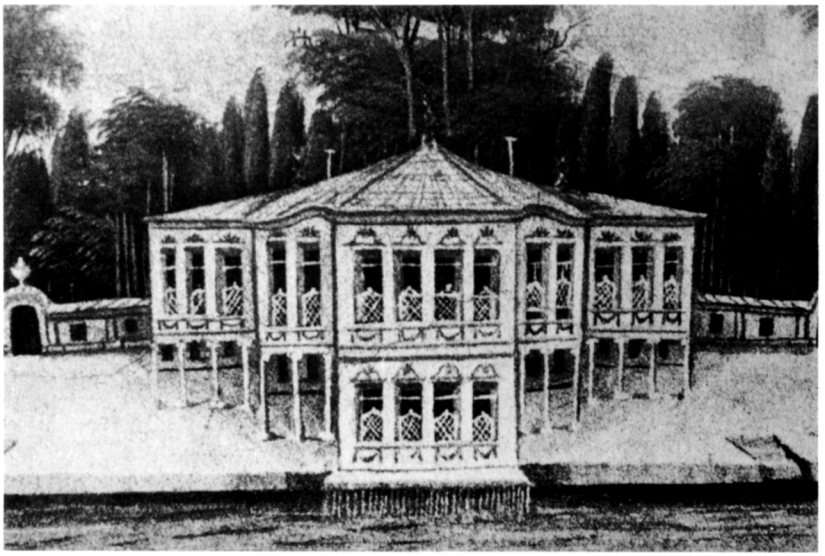

73
The *kösk* of Serefabad in Üsküdar, a pavilion *mis à nu,* as pictured in a fresco in the *yali* of Sadullah Pasa.

The second example goes back to about 1740. It is what has come to be known as the only landscape drawing by Jean-Etienne Liotard. Called "the Turkish painter," Liotard is known as the most talented, that is to say, the most sensitive and nuance-loving, of the French-speaking "Bosporus painters." Born in Geneva, he experienced his years in Istanbul (1738–1742) as his fulfillment and self-definition. And with a stance as consequent as it was provocative, he chose to wear Turkish clothes when he returned to the West.

It is a strange coincidence that exactly in 1911, the year of Klipstein's and LC's trip to the Orient, Hachette in Paris published the first complete account of the *Peintres du Bosphore.* LC might conceivably have come across this title, being at the time already an accomplished draftsman and becoming in a few more years (1918) a recognized painter. The author of this validation of the group of painters enthusiastic about the Orient was Auguste Boppe (1862–1921), who made a successful diplomatic career out of his connoisseurship of the Ottoman Empire. He was sent several times as attaché of the French embassy to Istanbul, and from 1903 on published a series of studies

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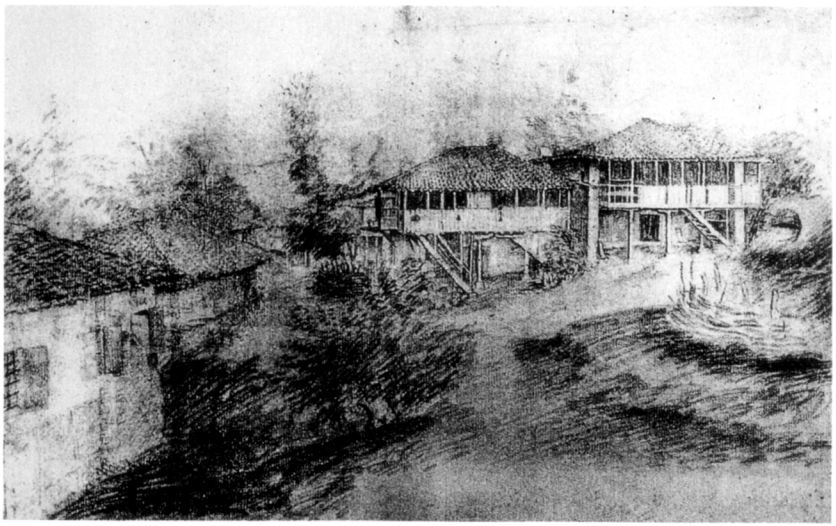
on known or rediscovered Bosporus painters and on the *turquerie* fashion of the eighteenth century. He was a *diplomate-collectionneur* such as are found only in France.

What occupies Liotard in this extraordinary drawing (figure 74) is not his main theme of people in Oriental clothing, sitting and passing the time in an Oriental manner, but rather the Turkish country house as it looked about 1740. The two buildings, staggered on the hill on the right, show precisely the top-heavy overhang whose vocabulary we are thoroughly familiar with by now.

The connection to the old Turkish house, studied by Kümürcüoglu, easily emerges in Liotard's drawing. The most impressive example presented by Kümürcüoglu is the house of Ismailoglu Mehmet Börekci from the village of Ortalica near Tosya, which is shown in a cross section, a ground plan, and two photographs (figures 75–77). "The ground floor is completely independent from the upper floor," writes Kümürcüoglu; "on the upper floor are the actual living quarters, just as was the case in the townhouses discussed above. The lower floor is utilized either as a storage space or, in the larger buildings, also as stables."[45] An agrarian's self-sufficient farm, it turns



74
Two Turkish country houses about 1740, drawn by Jean-Etienne Liotard dit le peintre turc.

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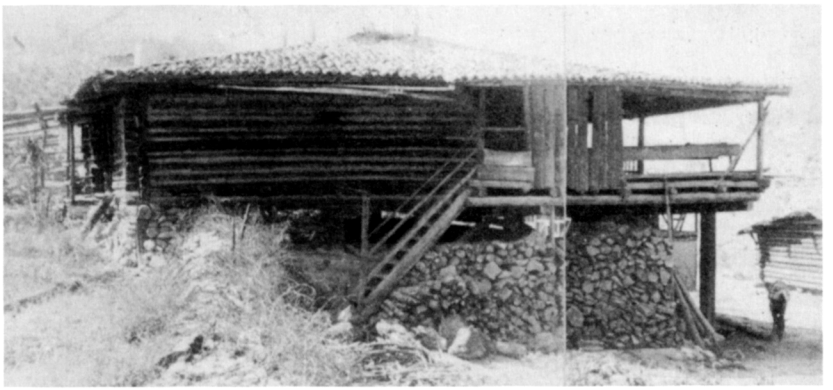
75–77
The Börekci house in Ortalica, for Kümürcüoglu the original type of the old Turkish house of self-sufficient farmers.



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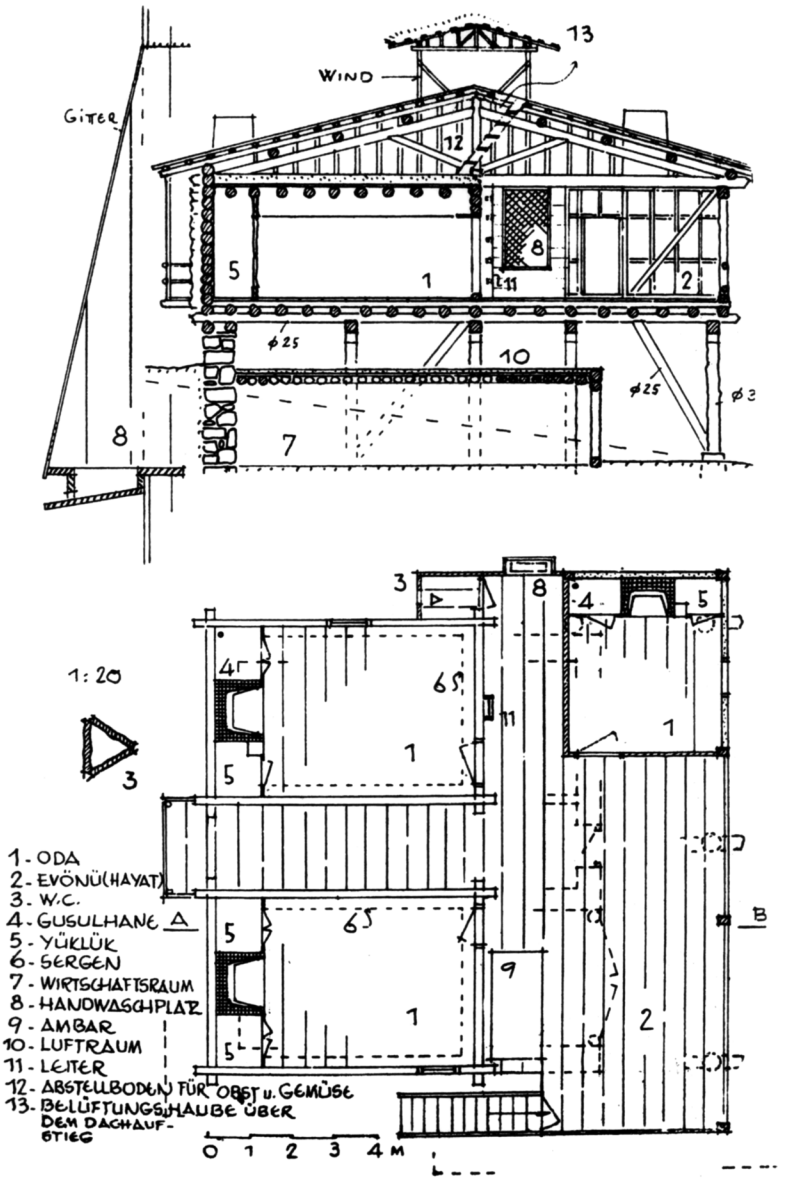

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the north European *horizontal* disposition of dwelling, stables, and storage into a *vertical* disposition, with stables and storage space below, dwelling above. This is certainly one of the sensible variants of an autarchic farmer's dwelling, found not only in the Turkish Anatolian region (and in the southern Balkans) but also in the subtropical and tropical zones of our planet, on the islands of the Pacific, for instance. Since Kümürcüoglu deliberately limited his explanations to climatic and material data, I myself take the responsibility for the thesis that the Börekci house depicts something like an ancient Anatolian prototype of a house for a self-sufficient farmer who has settled down permanently.

We can safely rule out the possibility that research on building types in the Near East had discovered or systematically investigated such house types as early as 1911 or 1929. The appreciation of ethnologists and architectural historians for ancient prototypes of buildings for ordinary daily life reached the Near East considerably later. I say this to indicate that LC was not in position to be acquainted with early structures such as the Börekci house, neither when he was a traveler in the Orient nor when he designed the Villa Savoye. But what happens when I compare the two (figure 78)? It becomes clearly evident that they are indeed comparable, that there are enough similarities between them to invite a comparison.

The raised dwelling of the self-supporting poor that goes back to unrecorded times meets the raised dwelling of the affluent and its modernity. Their needs are completely different, but they choose the same construction; for completely different reasons, they choose the same raised site for their completely different styles of living. Even though on his trip to the Orient LC only came across later types of housing and was not handed any ethnological data, couldn't he have reconstructed for himself the early prototype on the basis of what he saw in Istanbul, on the Bosporus, and in Bursa? This is by no means impossible. But leaving speculation aside, let us simply enjoy the correspondences that emerge unexpectedly between them, correspondences as close as a mirroring. This mirroring effect further deepens our impression of one being the corresponding "reply" to the other. Of course this reaction is possible for us only now, after the fact, which between 1911 and 1929 could only have been the intimation of an idea in the mind of the young artist.

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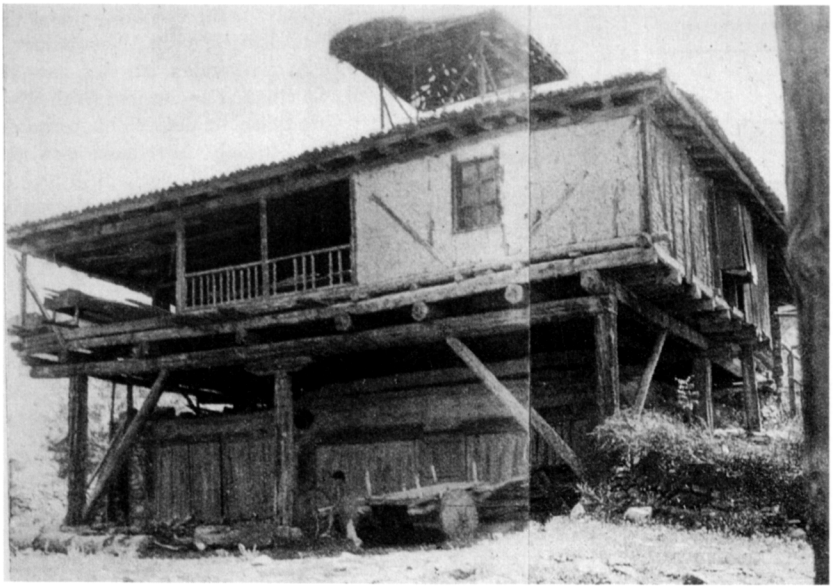
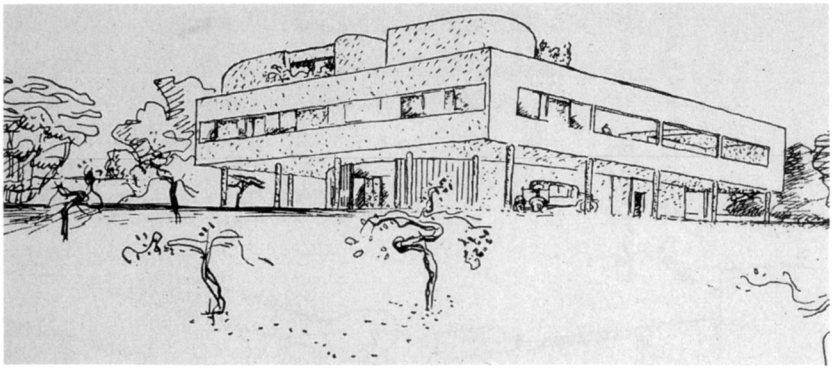
78
Can the house of the poor but austere farmer be compared with the villa of affluent city dwellers? Börekci house versus LC's Villa Savoye: they have in common the same basic construction.





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If ethnologists were to assure us that the vertical organization of the Börekci house generally belongs in the subtropical and tropical zones, this becomes further evidence for its special meaning for LC as part of his affinity for southern zones. In the radiant white house, whitewashed every spring, LC takes hold of the awakened longing, disguising it under the term "Ripolin." In the cubic house on the far Mediterranean island, LC takes hold of the awakened longing, disguising it under the term "geometry." The Anatolian house raised on pilotis is the third aspect he embraces. Seen thus, he turns out to be the most zealous appropriator of the Mediterranean zone among architects of the twentieth century. His faith in the possibility of transplanting ideas, form, and colors from south to north seems to have been absolutely boundless in his youth. Therefore, one could call the young LC, until the Villa Savoye and the Palace of the League of Nations, the Albert Camus of architecture. Camus developed a *philosophie de la lumière méditerranéenne* later than LC propounded it through his design, to be sure, but with related arguments. But this parallel has its limits, because Camus grew up in the light of the south (in Algiers)—LC, by contrast, in the mountainous north of the Swiss Jura.

How does a last group of LC's Istanbul sketches, which one might call silhouette studies (figures 79–81), fit the observations made here thus far? No one denies that Istanbul of the great mosques, Istanbul of Sinan and his successors, was conceived "from the silhouette." Istanbul's hill chains, following faithfully the pattern dictating the choice of Hagia Sophia's site, were deliberately chosen also for the site of the mosques. Thus at dawn and at dusk occurs the miraculous transfiguration into a cut-paper silhouette, into the second dimension that seems to drain all corporeality from life. No visitor of that city proves impervious to this phenomenon, and LC too shows his sensitivity to this spectacular sight. He paints in watercolors several views from the slope at Pera (figures 79, 80), in which the lightness of the distant building (Hagia Sophia or Sultan Ahmed?) is heightened to a significant aspect of dematerialization. In figure 81, LC looks from Pera over the aqueduct in the middle ground to the silhouette line from mosque to mosque. Then he goes beyond and describes with a sharp, thin trace the southwestern coastline of the Sea of Marmara.

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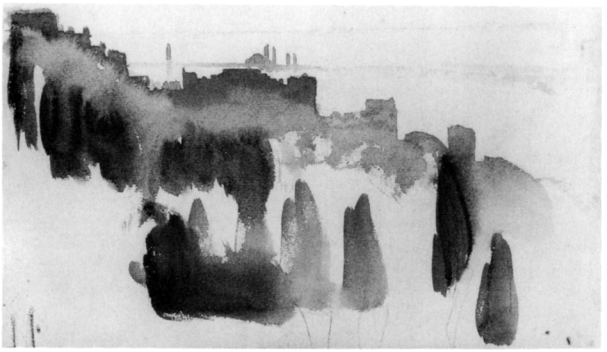
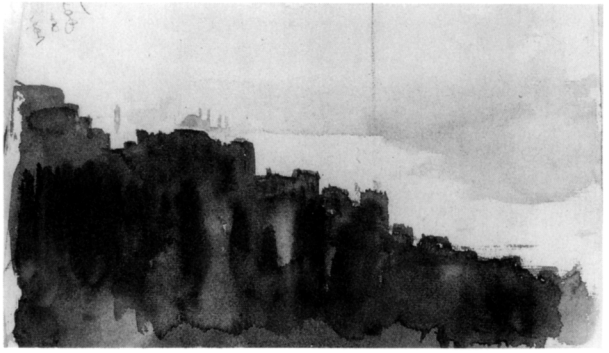
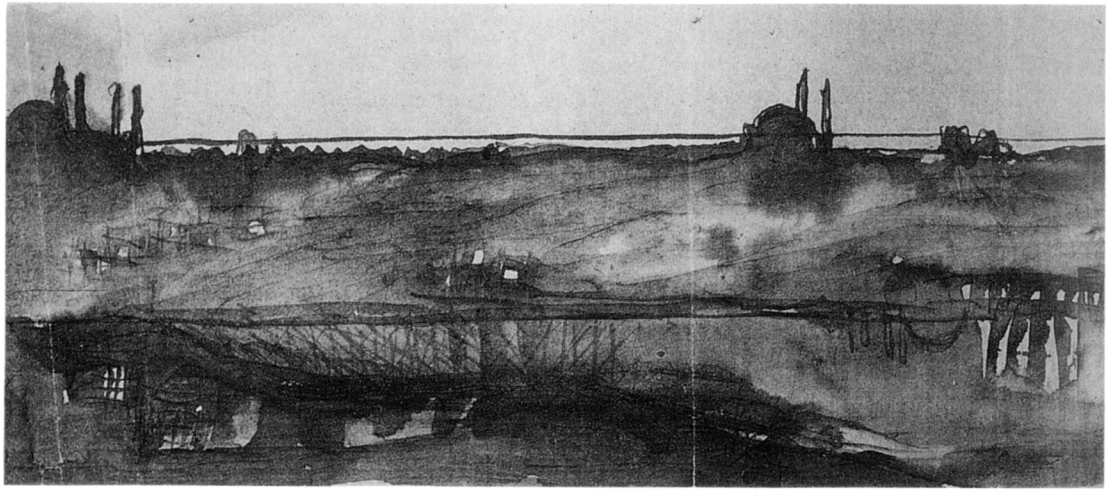
79–81
Istanbul with its huge mosques is conceived from a silhouette's outline: at dawn and in the evening light occurs a miraculous transformation into the second dimension. Three examples of LC trying to capture this phenomenon with different watercolor techniques.







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PART II A Hymn in Praise of Pilotis—and in Praise of Jean-Jacques Rousseau

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At the end of chapter 4, I proposed the thesis that the Turkish oriel type with its *cikma* construction influenced LC's buildings like that for the Salvation Army and the two houses at the Weissenhof housing development, across the span of one and a half decades. The villa at Carthage and the Villa Savoye I showed to be related to the Ottoman *kösk* or pavilion.

If one tries to sum up concisely the *leçon turque* of 1911, one can say that it amounts to the realization of a possible analogy between wood construction and concrete design. The young architect LC, who on quickly varying letterheads was about to declare himself a specialist in armored concrete (figure 82), perceived in Turkish wood construction a freedom and daring in the imaginative handling of pilotis and slabs that he begins to bring into the age of concrete. He accompanies and shapes this age, not exactly as a pioneer (as, for instance, Auguste Perret, or the theorist of concrete Mörsch and his translator Max Du Bois), yet as its most creative designer, and at the same time as the most persistent defender and missionary of this special new material in the public media. This new material for new dreams fascinates us even today, although its counterproductive and dangerous aspects, leading to bunker design, apartment silos deteriorating into slums, and suburban housing totally alien to the users' needs, did become evident quickly enough, even during the last years of LC's life. Yet, as his last writings show, he perceived only from afar that concrete was becoming a disparaging and accusatory term for the younger generation.

We now return to our discussion interrupted by the detour of the *leçon turque* (chapters 5–7). We were concerned with LC's glorious series of individual buildings of a medium scope, leading from the Salvation Army building by way of the Villa Stein in Garches (1927) to the two houses at Weissenhof (1927) and the villa at Carthage (1927), and to the Villa Savoye (1929) that, as LC must have felt, was something like the realization of his best intentions, a true culmination. The transposing of these best intentions into something much more complex and grand, the design of the League of Nations project at Geneva, led, as described, to a mobilization of the fronts in art politics. The firm Le Corbusier and Pierre Jeanneret becomes prominent

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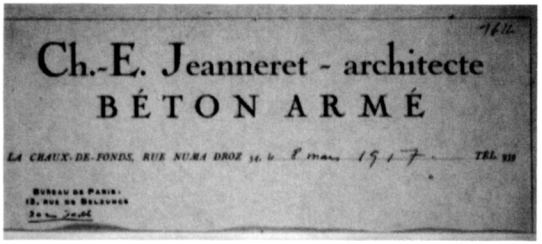
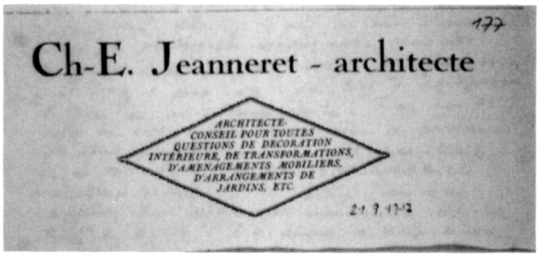
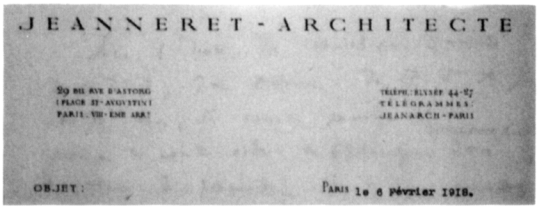
82
Three letterheads LC used in the years at La Chaux-de-Fonds.







and at the same time is massively attacked. The glory and humiliation in Geneva make LC a missionary and combatant on the public scene of the media, a defender of his own threatened goal.

The change from the designer's board and writing desk to the lecture pulpit is nothing new to him. But now he undertakes it with full deliberation, weighing carefully the means at his disposal (figure 83): "Then a [new] technique of lecturing occurred to me. I prepare my easel, on top of it a block with several sheets of drawing paper, on which I draw in charcoal and in color. Behind me is a line reaching from one end of the stage to the other, on which I hang pages one after the other as soon as they are covered with drawings. Thus the audience fully follows the whole unfolding of my ideas before their eyes. Finally, a screen for about a hundred [slide] projections that help the

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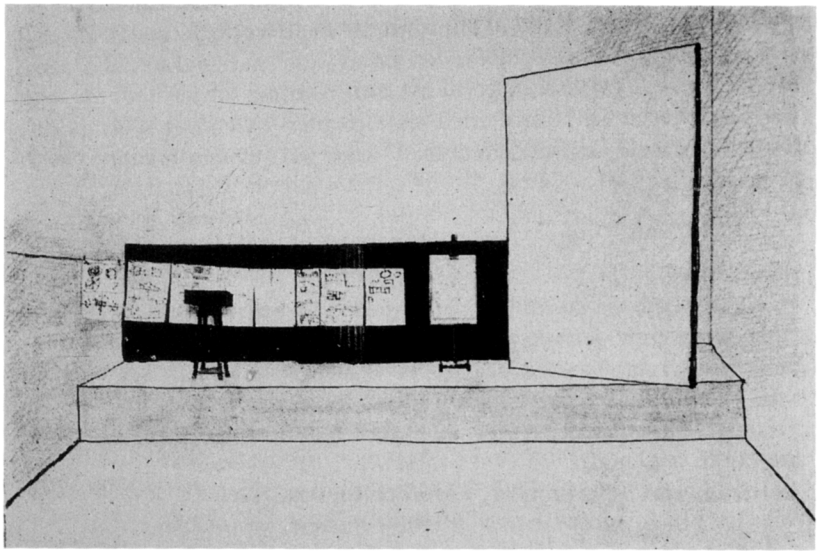

83
The lecture pulpit of Buenos Aires: the missionary's didactic stage props.

previously expressed thoughts to materialize. . . . And I improvise, for the public loves to feel that I create for its sake. Thus it does not fall asleep."[1] (*Car une technique des conférences m'était venue. J'ai aménagé mon trétau: un bloc d'une dizaine de grandes feuilles de papier sur lesquelles je dessine en noir et en couleurs; un cordeau tendu d'un bout à l'autre de la scène, derrière moi, sur lequel je fais accrocher les feuilles à la suite l'une de l'autre dès qu'elles sont couvertes de dessins. Ainsi l'auditoire a sous les yeux le développement complet de l'idée. Enfin, un écran pour la centaine de projections qui matérialisent les raisonnements précédents. . . . Et j'improvise, car le public aime à sentir que l'on crée pour lui. Ainsi ne s'endort-il pas.*)

Suddenly we see a teacher in action, and a talented one at that, talking to us concertedly. He takes the didactic problem so seriously that his books illustrate minutely the means generally used, and he explains them too. On the left a reading pulpit, on the right a large projection screen placed at an angle. In between is his easel with a large block on top. He sketches with charcoal and at the same time he speaks. A double elucidation, in a sketch and in spoken words. This is precisely the double language of art history, a constant interweaving of image and word. This is to be clearly distinguished from

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the purely verbal language used by poets, Reformed ministers, and lawyers. And with his themes LC actually moves within the paradigms of art history and architectural history (regardless of whether he acknowledges this or not), since he draws a lot of historical comparisons. But he does not take them for granted, as traditional art historians are wont to do, but always relates them to the present that needs to be damned, and to a radiant near future within reach as soon as tomorrow.

The mortal enemy of academism has stepped to the lecture pulpit. In front of the blackboard, however, he hangs a clothesline as if he were a washerwoman with rolled-up sleeves, and he hangs the fresh laundry of his sketches all across the room. In fact, he played out this entire scenario not only in his ten lectures in Buenos Aires of October 1929, but also in the book that followed immediately afterward, using the same drawings: *Précisions* of 1930. Already in *Une maison—un palais* LC had tried to transpose the illustrated lecture into book format. But only now, in Buenos Aires, did he fully develop the platform corresponding to his intentions, and then turned it into a book without losing any of the immediacy of his stage presence.

It is probable that in the years after the Geneva shock LC would gladly have applied to himself a shrewd prefatory remark by the art historian Heinrich Wölfflin (1864–1945), could he have known it: "The books—they are all right; but the real Wölfflin one could encounter only in the lecture hall. I don't know how many share this view—I myself am not inclined to contradict it."[2] To be sure, LC's lecture pulpit of 1929 goes completely against the grain of the modernizing trends of that time. For he insists on the priority of the spontaneous sketch; in contrast, the slide projection is clearly subordinate and exposed to distortion due to his placing the screen at an angle.

The academic establishment, however, had by then fully submitted to the use of slide, and it was Wölfflin who developed the use of two slides projected side by side into a masterful visual didacticism, an art of comparison and nuanced discernment. The price this exacted was certainly high, and it remained seemingly unnoticed. Evidently art history had already exiled itself forever into half-darkness by accepting Bruno Meyer's glass photograms,[3] and the art lecturer had abandoned the use of his hands in the process, increasingly desisting from giving his explanations a palpable aspect by his sketches on the blackboard, and fully depending on slides supplied to him

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ready-made. For Wölfflin's generation, therefore, it already sounded odd when Wölfflin's equally famous teacher Jacob Burckhardt (1818–1897) insisted that a lecturer on art and architecture had to be a good draftsman. Burckhardt always brought to his lecture the art material to be discussed in a large portfolio that contained drawings, engravings, and early photographs (figure 84). While speaking, he carried these around with his arms raised and held them close before the eyes of his students, and explained them with additional sketches on the blackboard. When the Technical University of Karlsruhe wanted to appoint him in 1865, he sent the following astonishing answer from Basel, explaining his refusal in "an unfriendly tone": he "was not able to draw sufficiently well for a formal instruction in art history."[4] No doubt Burckhardt would gladly have given his approval to the renewed actualization and ennobling of the explanatory sketch by LC, even though it seems to us that he would have felt more likely stymied than fascinated in front of the Villa Savoye or the League of Nations project.

LC's lifelong plea in favor of freehand drawing, documented by the thousands of sketches he made during all phases of his work, takes on an even sharper contrast against today's practices. Not only has the art historian lost the use of his hands (just touching a button is enough to change a slide), but something similar is now happening to the architect-designer. The computer works three-dimensionally, the planned building can be called up at the touch of a button together with all required data. Only the earliest phase of the conception of the total idea, the "first inspiration," seems reserved for the architect's hand. Seen thus, LC's sensational and lasting fame is partly to be read as an unconscious reciprocal construction: the less architects and art lecturers draw, the more fanatically they admire and celebrate the constant craftsman LC, an emphatic fame celebrating what one has just rejected and discarded. The compensation helps to avoid painful reflection on the gains and losses incurred in galloping but blind progress.

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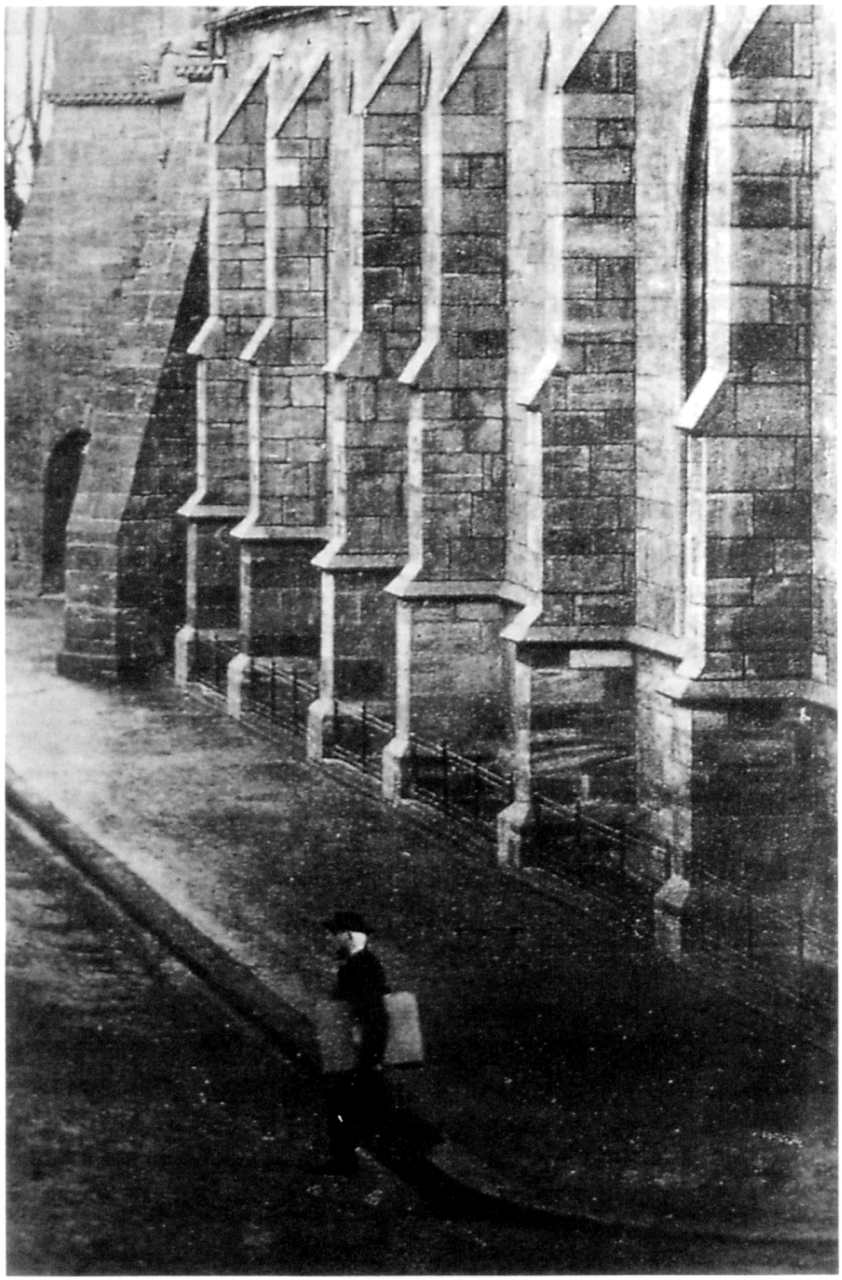
84
Jacob Burckhardt with his portfolio under his arm in front of the cathedral of Basel—his route to his lectures.



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The second of LC's ten lectures in Buenos Aires, held on Saturday, October 5, 1929, seems to me the most vivid, most spontaneous rendering of the core of his undertaking. He formulates it as follows: *Les techniques sont l'assiette même du lyrisme* ("The [new] techniques are themselves the vessel of poetry").[5] Astonishingly enough, as if concerned to give a confirmation to the frog's perspective we have chosen, the whole lecture dwells on the theme of pilotis, only at the end moving on to the theme of *respirer* (breathing).

The first drawing he sketches on his easel (figure 85) is simultaneously explained in words: "I begin my drawing at the bottom and draw one, two, three plates. On each plate I place something: on the first, techniques. . . . On the second I write: sociological matters, and specify them by a new ground plan for the house, for the city, for a new epoch. . . . On the third plate: economical matters . . . why architecture is very ill, and the country ailing with the [same] illness of architecture."[6] (*Continuant mon dessin par le bas, je dessine une, deux, trois assiettes. Je mets quelque chose dans les assiettes: dans la première: Techniques. . . . Dans la seconde assiette, j'écris: Sociologique et je qualifie par: un plan nouveau de maison, de ville, pour une époque nouvelle. . . . Dans la troisième assiette: Economique . . . pourquoi l'architecture est bien malade, et le pays malade de la maladie de l'architecture.*)

At first LC deals out generalities, but he immediately arrives at drastic conclusions. The techniques open up new hopes; sociology promises the new city; economics shows why architecture is very ill and makes the country ill. He immediately names the remedies. They are called "standardization, industrialization, Taylorization." Emerging fears are calmed: "these three phenomena are neither cruel nor frightening [*ni cruels, ni atroces*], on the contrary, they lead to order, perfection, purity, and freedom [*conduisent à l'ordre, à la perfection, à la pureté, et à la liberté*]." LC knows this so precisely and can sum it up so quickly because he speaks in the name of truth: "In their *unshakable truth,* my schemata permit the spirit to proceed with agility" (*Mes schémas, dans leur indiscutable vérité, permettront à l'esprit une course agile*).[7]

Then he draws a horizontal line across the page and draws on it a pipe and some smoke rising from it. "I overstep the boundary and I enter the

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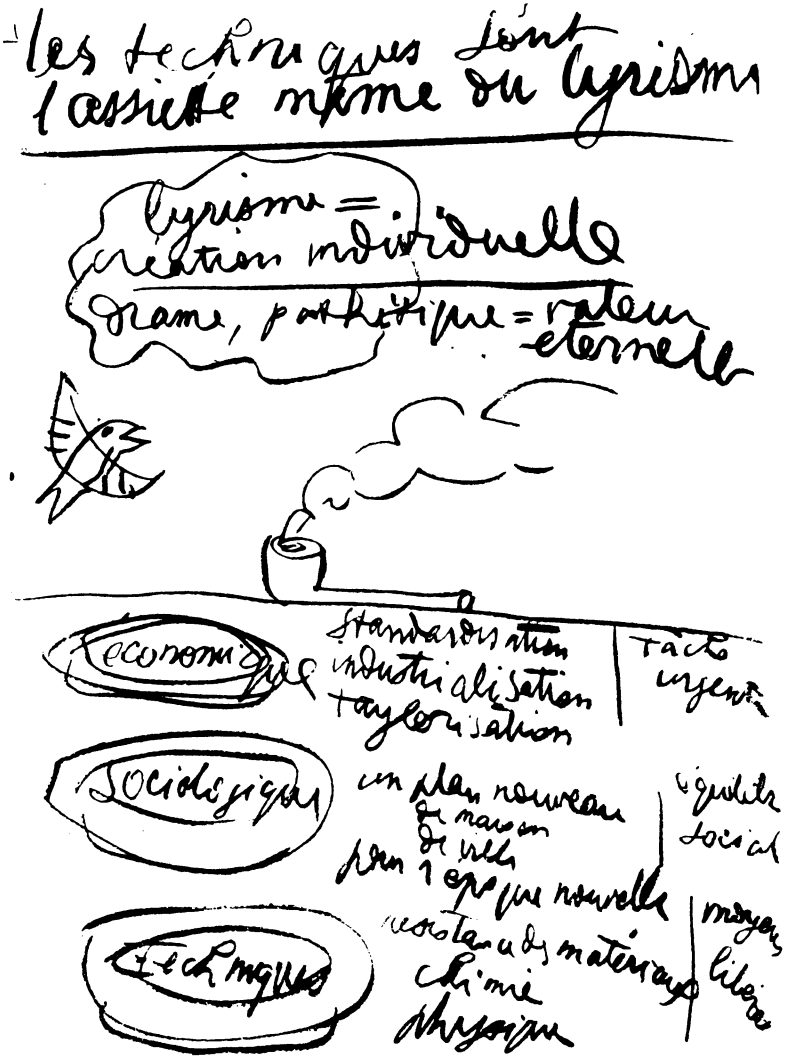
85–88
LC's lectures in Buenos Aires (October 1929) turn into spontaneously developed sketches on the easel. "The poetic vision of the True today which I will show to you, you yourselves will create for yourselves. What I speak will be 'technique,' what you reply, 'poetry.' " *(continues on following pages)*



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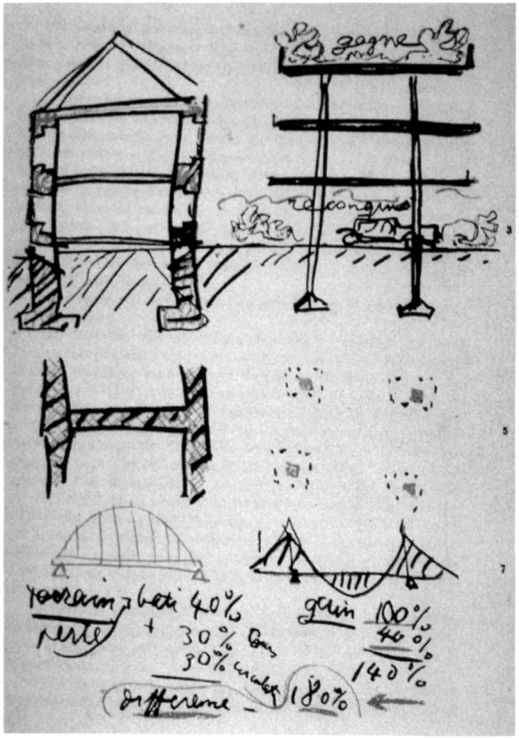

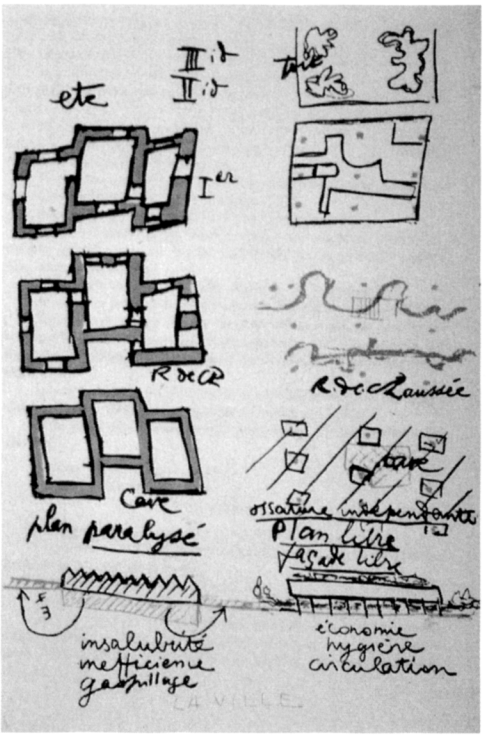

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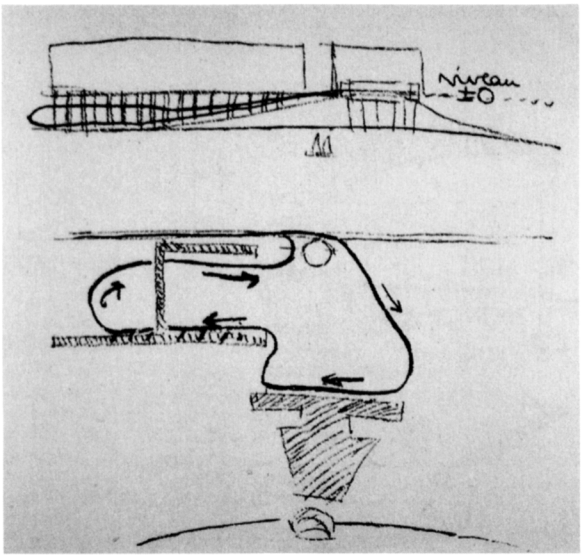

sphere of feelings. I draw a pipe and some smoke rising from it. Then a little bird that flies away and on a pretty pink cloud I write: Poetry. I proclaim: *Poetry = personal creation.* And I explain: what is *drama,* what is *pathos;* and I add: here eternal values are at stake which in all epochs will rekindle the flame within the human heart."[8] (*J'enjambe la limite et j'entre au domaine des émotions. Je dessine une pipe et une fumée de pipe. Et puis un petit oiseau qui s'envole, et, dans un joli nuage rose, j'inscris: Lyrisme. Et j'affirme:* lyrisme = création individuelle. *J'explique: ce qui est* drame, *ce qui est* pathétique *et j'ajoute: ce sont là des valeurs éternelles qui rallumeront en tout temps la flamme au coeur des hommes.*)

What a dangerously talented teacher and also what a smooth blatherer who does not recoil from any platitude! But what an evocative power he has. He unabashedly takes us by the hand and leads us to a horizon of the Promised Land.

Only read, only taken on the verbal level, this series of vague concepts and banal terms cannot be defended in the least. But as soon as I simultaneously see and read the spontaneous sketch beside it, something like a "pedagogical Eros" emanates from this elucidating process performed before my

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eyes. Furthermore, when I remember *who* is speaking to me thus and is sketching in my presence, namely, the creator of the Villa Savoye and the designer of the League of Nations project, my perceptions are changed still once more. They lead me from two-dimensionality to the third dimension, and then the banal and the exquisite are suspended together in a double sense: they are reshaped into something truly new and different that materializes before me as a body in space. Now the listener and the passive observer are also included: "The poetic vision of the True today which I will show to you, you yourselves will create for yourselves. What I speak will be 'technique,' what you reply, 'poetry.'"[9] (*Vous créerez vous-même, pour vous-même, la vision poétique de cet aujourd'hui vrai que je vais vous montrer. Moi, je parlerai "technique," et vous, vous réagirez, "lyrique."*)

What he wants to draw next is the "decisive symbol" of all he has to present in Buenos Aires. It involves cross sections of two buildings (figure 86); we already know them and we show them here supplemented by the ground plans: "in these two drawings . . . everything is written down, everything is set down, the game is clear, the verdict final, and the decision is irrevocable."[10] (*Dans ces deux dessins . . . tout s'écrit, tout s'inscrit, le jeu est clair, le verdict définitif, et la décision ne saurait être troublé.*)

The result is equally clear: "Total inversion of the former conditions," namely, "the ground under the house is free . . . the roof is reclaimed . . . the facade completely free . . . thus I no longer am paralyzed."[11] (*Renversement total des conditions traditionelles . . . le sol est libre sous la maison . . . le toit est reconquis . . . la façade est entièrement libre . . . je ne suis plus paralysé.*)

In a second round, the old and the new are set in contrast again by means of the ground plans of all the floors (figure 87). Instead of the gloomy cellar (*cave*) of old, only a very small coal room is allowed; however, it is crossed out with hatching strokes because it will be superseded by district heating. Thus the new house begins literally on the ground floor, and this manifests itself in the ground plan in only two elements, the dots indicating placement of the pilotis and the lines indicating the stairs. The rest is free-floating air, and it is drawn that way. At this point comes finally LC's long-awaited definition of pilotis: "In this space [of the open uninhabited ground floor], which for brevity's sake I call *les pilotis,* I install the main entrance of the house."[12] (*Dans cet espace que pour plus de rapidité j'appellerai* les pilotis,

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j'installe la porte d'entrée de la maison.) An odd, seemingly vague designation. Does this puzzling plural *les pilotis,* translated in the dictionary as "pilework," signify the slender supports or the free-flowing space? Obviously there is a complete lack of names for this new unbound flux of space, as we might call it, and LC falls back on a concept that (as will be shown in chapter 28) was implanted in him in his earliest school years.

With the cross section and the ground plan the new house has been explained. What remains to be done is *to celebrate the pilotis principle,* to "consecrate" it (*consacrer le principe des pilotis*).[13] LC intones the hymn to the one, great, enduring concept of his life.

The ground floor: "The light, the air are going to flow through under the house. What a conquest. . . . And the house will present itself in the air. What architectural purity."[14] (*La lumière, l'air passeront sous la maison. Quelle conquête! . . . Et la maison se présentera en l'air. Quelle pureté architecturale!*)

The first floor: everything is empty and well lit by the long windows—only "a few pilotis, round or cornered, 20–25 cm in diameter."[15] Therefore, no walls, but only room dividers or screens out of cork, cinderblocks, straw, or whatever.

The roof floor: "full of flowers, ivy, cypress, laurel"; lawns and gravel paths are indispensable. At night, up here glimmer the stars, *vous les voyez toutes,* "you can see them all."

What common denominator does LC give to this enormous liberation (*immense libération*), which he sees as a gigantic step (*pas gigantesque*)? He coins a metaphor and composes a short Japanese quatrain. The metaphor: *la forêt légère des pilotis* ("the airy grove or the slender grove of pilotis").[16] The quatrain (printed in his text on one line and likely to be mistaken for a misaligned sentence) reads:

"Built	*Bâtie*
on pilotis	*sur les pilotis*
in the air [is]	*en l'air*
the city."[17]	*la ville.*

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If we recall LC's countryman Charles Ferdinand Ramuz, this disguised quatrain might figure as a completely unexpected new alternative to Ramuz's sentence, "*Ils bâtissent la ville . . .* " that we discussed in chapter 1.

Yet in addition to this condensation into poetry, there is a technical consequence to be dealt with: henceforth LC wants to place the building's elevation reference line ±0 not level with the ground but at the height of the pile-work. He describes this levitation feat of planning in the case of the design of the League of Nations project (figure 88): "And thus, now at the edge of the grassy hill, I establish my zero level ±0; the wing of the General Secretary I throw in the direction of Geneva, at ±0; toward the lake I throw the floor plane of the Great Assembly Hall and the President's Pavilion, always at the same level ±0. With the plane of the President I arrive at a considerable altitude above the lake's surface. I have altogether detached myself from the clusters of trees, I have moved away from the traffic noise, I am aloft, amid the azure sky, amid the sunlight, amid joy, amid the light everywhere."[18] (*Et alors, au bord même des coteaux gazonnées, j'établis mon niveau zéro: je jette vers Genève les ailes du Secrétariat Général . . . à la côte ± 0; je jette vers le lac le plancher de la Grande Salle des Assemblées . . . et du pavillon du Président de l'Assemblée, toujours à la même côte ± 0. J'arrive avec le plancher du Président bien haut au dessus du lac. Partout je me suis dégagé des futaies, je me suis éloigné du bruit, en plein azur, en plein soleil, en pleine joie, en pleine lumière, partout.*)

If in the twentieth century there exists a Song of Songs in praise of architecture, these lines belong in it! What euphoria, what a feeling of joy about the vision attained! During those good days in Argentina, regardless what his point of departure happened to be—here the plus-minus zero point—he always arrived at new variations of the same repetition and confirmation of his big creative leap in Geneva.

The quickly and loosely drawn sketch (figure 88) is more precise than one might expect from its abbreviating strokes. The loop under the pilotis shows the path of car traffic, an important argument for LC, because he puts thus the adventure of floating above ground on a level of concrete considerations. The President's Pavilion right by the water's edge should also not be overlooked. It is flimsily drawn in front of the white front wall of the Great Hall with very thin lines standing for its six stilts, but it will become apparent that it occupies an important position in the total evaluation of the design.

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Thus far the discussion has been almost exclusively of the pilotis, but at this point LC begins to focus more and more on the terrain itself, on the stretch of land on the Lake of Geneva that was reserved for the buildings of the Palace of the League of Nations. LC's love for the landscape around the Lake of Geneva becomes manifest now in his prolific descriptions. Of all the locations on which he built or for which he designed, no place, with the exception possibly of Chandigarh, fascinated him as much as that lake, which he drew and described time and time again. The upper lake (*haut lac*) of the Montreux basin captivated him as much as the "little lake" (*petit lac*) near Geneva. Directly on the shore of the *haut lac* at Corseaux-Vevey he built in 1923 his *petite maison* as an old-age residence for his mother and father. Only four years later, January 25, 1927, came the deadline for handing in the design for the competition for the Palace of the League of Nations, which was to be erected on the resplendent and affluent shore at the other end of the lake, embedded between the Jura chain, the Salève massif opposite, and the distant Alps behind.

Une maison—un palais (1928) contains more prolific praise of the landscape in pictures and in words than does *Précisions,* published two years later, which offers shorter but more richly faceted arguments in its favor. Clearly meant as an incantation was the full-page photograph of the *haut lac* (figure 89), with the mountains of Savoy veiled in mist, the steamboat rippling the water's surface as it skims across the lake, and the steep zigzagging retaining walls of the vineyards on the Lavaux slopes in the foreground. In his commentary LC calls this bird's-eye view plunging into depth over a vast multiform terrain "a moment of bliss" (*des moments heureux*). He sees here "*nature* as an explicit fact" and humankind "as an equally clear given" united "in a moving congruence," "chanting together the praises of the same law" (*dans un concert émouvant, le fait* nature *explicite et le fait homme . . . chantent tous ensemble la même loi*). One might be tempted to think this a statement as true as it is vacuous, if LC had not added to "humankind as a given" its determining qualities, "clearly defined by clearly formulated functions" (*précis en fonctions explicites*).[19]

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Thus we can leave the plane of highly elevated language and simply say, in this countryside of the upper lake basin forged on a grand scale with its steep slopes and endless water reflections, human work accomplishing its cultivation fits harmoniously because it follows strictly and soberly the law of functionality. This is as true of the retaining walls of the hilly vineyards as it is of the construction of the steamboat, which for LC belongs to the *beaux bateaux* (and, we might add, has proved its efficiency on this lake to this day). It is no accident that LC draws also a promenade deck of this steamship type and illustrates it in *Une maison—un palais* (figure 90). One looks out into the distance under the plane of the roof, even if it is only a canvas awning, and has a view of the lake and the mountains simultaneously subdivided and framed like a picture by the slender metal supports. This recalls the long window, but, as we will soon see, it also has something to do with the new optics of the gaze penetrating underneath a building raised above the ground.

C. F. Ramuz claimed as the theme of his poetry the celebration of the course of the river Rhône, from its glacier source to its estuary but especially the landscape of Valais, as the components of a special riparian regional culture. That as a draftsman and as an architect LC did the same thing is not as well known; and, of course, he did it in a different way. Briefly, Ramuz sees the hilly vineyards from below in all their steepness above the lake. His theme is the heroic toil of the wine growers. LC, on the other hand, shows the same slopes of the Lavaux vineyards from above, from the steepest possible perspective plunging down into great depth. They are both fascinated by the "sun from below." Ramuz describes the light's reflections on the water and the effect of the "double sun" on the ripening grapes. LC's interest is captured by the same light reflection that, at the *petit lac,* is supposed to light the League of Nations building from below: *le soleil passe dessous* ("the sun passes through underneath") is his corresponding formula.[20]

But first his attention is arrested by the magnificent old trees of the Perle-du-Lac site assigned to the League of Nations, in the park area on the right bank immediately next to Geneva. This site was put at the architect's disposal by the Swiss state, which fully realized the extraordinary importance of this building project and its great political significance. "One enters this invaluable estate of century-old trees, one walks through the magnificent grove, then suddenly one is standing on the lawn-covered slopes descending

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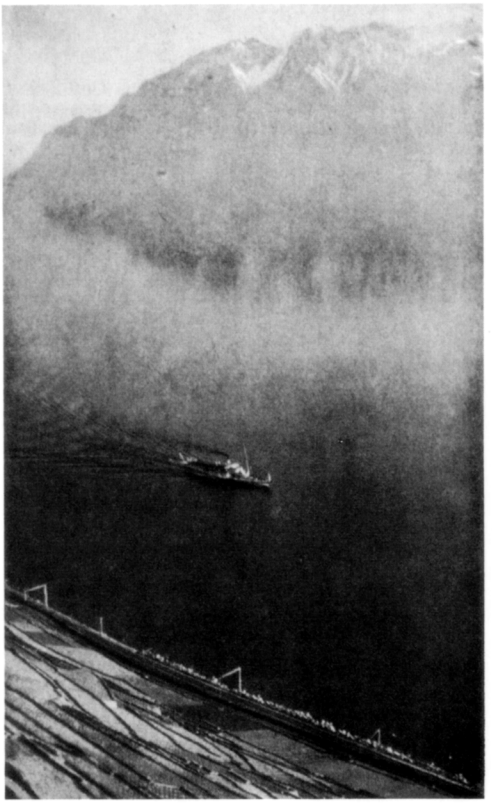
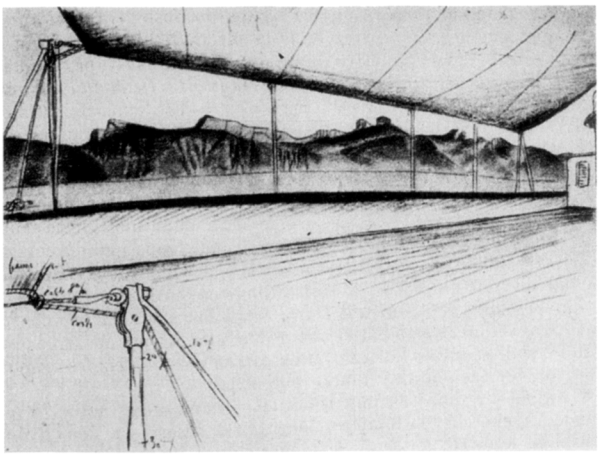
89, 90
The Lake of Geneva—a special world (illustrations from *Une maison—un palais*). More than that, "a moment of bliss." Its old-fashioned majestic steamboats anticipate in details of their construction what LC is seeking and desires in architecture.





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to the lake. And Mont Blanc, the Savoyan Alps, and the Salève stand just opposite. A tremendous spectacle! You will tell me: you will surely take advantage of the ground near the road to Lausanne, on the one hand to avoid the declivity of the hills and on the other hand to ensure a horizontal approach of the roads servicing your buildings."[21] (*On entre dans cette préstigieuse propriété d'arbres centenaires, on traverse une futaie magnifique, on débouche tout à coup sur les pentes gazonnées qui descendent vers le lac. Et le Mont-Blanc, et les Alpes de Savoie, le Salève sont en face. Spectacle insigne! Vous allez, me direz-vous, profiter de ce sol plat qui est vers la route de Lausanne, pour éviter les déclivités du coteau et assurer aux services de vos bâtiments une circulation horizontale.*)

But these kinds of difficulties are easily solved with the help of pilotis, as they raise the building above the contingencies of the site's shape (*au-dessus du sol accidenté*).[22] But can one dare to raise such gigantic buildings up in the air and thus "awaken the corresponding troubling sensations" (*donner l'angoissante sensation de ces gigantesques bâtiments en l'air*)? Answer: "I show you with satisfaction these pilotis, that carry a load, that are doubled by their reflection in the water, that allow the light to pass through underneath the building, thus making any distinction between the building's 'front' and 'back' meaningless. . . . Everything is drenched in sunlight, and if this were not enough, a breathtaking sight opens up before me: across the magnificent portico I see the glittering water reflections; I see the beautiful boats gliding by; I see the Alps in sections, framed as in a museum."[23] (*Je montre avec satisfaction ces pilotis qui portent quelque chose, qui se doublent de leur reflet dans l'eau, qui laissent passer la lumière sous les bâtiments, supprimant ainsi toute notion de "devant" et de "derrière" de bâtiment. . . . Le soleil abonde, mais plus que cela, un spectacle éblouissant m'attend: à travers ce portique magnifique, je vois le miroirement de l'eau; je vois passer les beaux bateaux; je vois les Alpes par panneaux, encadrées comme dans un musée.*)

Since the "lower sun" together with the sectioning of the panorama through pilotis is so important to LC, it too will appear in his drawings, as in the drawing of the boat from the deck (figure 90), where this motif is shown as something that exists in daily life but has not yet been reflected on.

The view of the Quai du Secrétariat (seen from the right) first shows clearly how the loosely aligned tree trunks cut the panorama in sections, but

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in an interesting manner, at slightly irregular intervals (figure 91). For by the interruptions the eyes are impelled to look more precisely. When the tree trunks (looking to the left) are replaced by pilotis and these follow one another at regular intervals, the panorama is undergirded by a rhythm, and an articulation is achieved through a quasi-musical compositional element. The series of "sections" (*panneaux*) "framed as in a museum" proves to be an artistic device to heighten the panorama by means of a grid of rhythmical sequences.

Although two further drawings (figures 92, 93) belong to two different genres—the first one is part of the technical design for the competition, the second one a spontaneous freehand drawing—they both can help to clarify the difference between a view out there in nature and a view framed in a composition. LC is fascinated by the fact that the continuous view under a building and its supports (made possible by the pilotis) introduces a new articulation in the field of vision. Evidently he is of the opinion that in an unbounded view from above the perceptual intensity declines, whereas the rhythmically subdivided view from below, even though drastically curtailed by what is above it, increases the perceptual intensity. Actually, this is no new problem for him, only a variation of an earlier one. Four years previous, in 1923, in the garden of the house designed for his parents, he built a wall barring the view of the lake (figure 94), and in this wall he cut a window (figure 95), something that caused great astonishment in the neighborhood. A window outdoors, opening a passage from the outside into the outside! The first stage of the concentration of the senses is a frame. Now he adds a second one, or, to put it more precisely, he becomes aware that the pilotis bring about this second stage: a rhythmic subdivision of the framed field of vision. LC is quick to make the distinction between the regularized rhythm (figure 91) and the rhythm accelerated by perspective foreshortening (figure 93).

The caption of figure 93 sums up once again what LC expressed in other passages in *Une maison—un palais:* "The landscape, the lawn, the flowers, the trees all must flow through the building: this clever device [use of pilotis] that makes the sun burst out *underneath* the building, that is, at the very spot where a dark shadow would cloud all space perception or where a cellar hole would have destroyed it—this theory of light, the basis of our architecture, is supposed to be a healing bath for the heart, to warm and gladden

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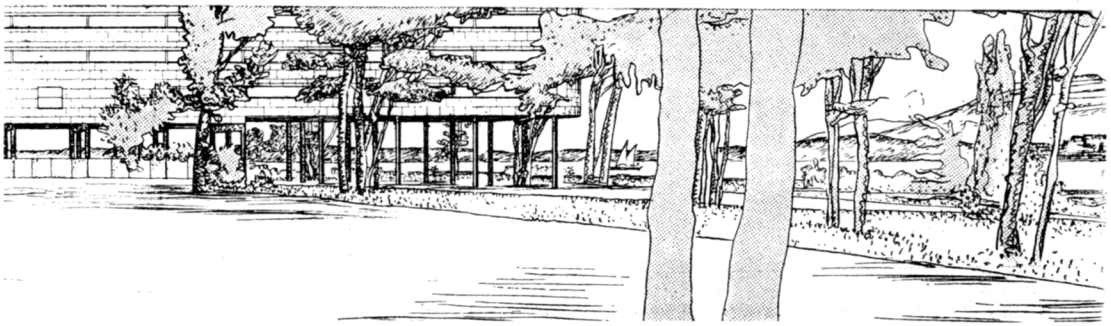
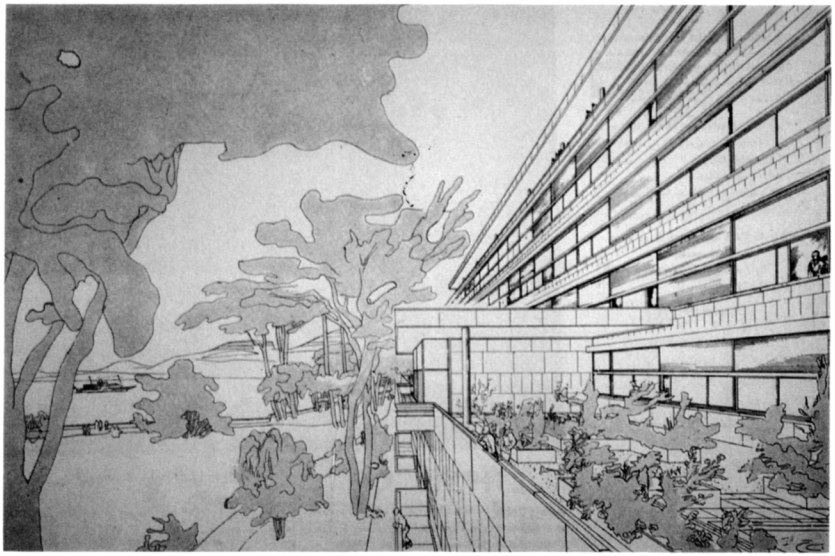
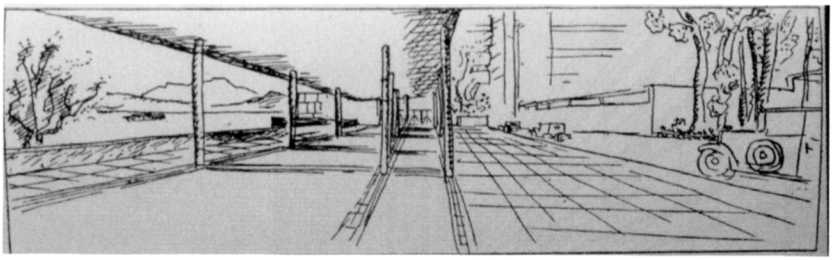


91–93
The League of Nations project at the shore of the Lake of Geneva shows the contrast between a natural view (92) and an artfully composed view (91, 93). The pilotis cut out pieces of landscape; the moving eyes of a walking person see moving pictures as in a film.





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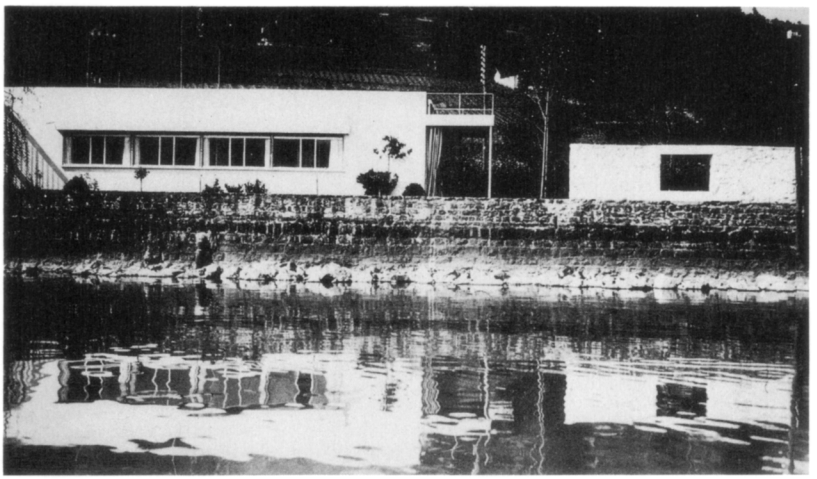
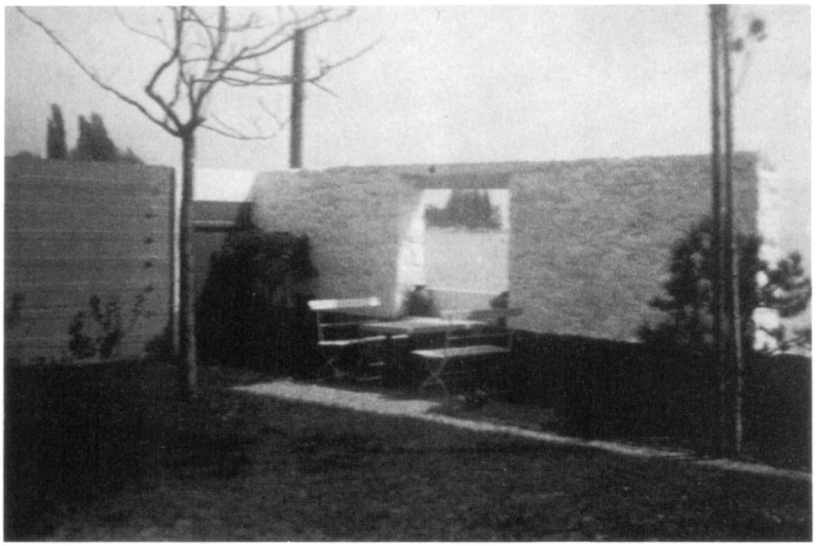
94, 95
First stage of the concentration of the senses: the effect of framing. In the garden of the house for his parents in Corseaux-Vevey, LC is playing off a composed view against a natural view.





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it, an enterprise that goes beyond anything useful in the narrow sense."[24] (*Faire couler le paysage, les pelouses, les fleurs, les arbres à travers les bâtiments; ce stratagème* [*les pilotis*] *qui a pour effet de faire éclater la lumière sous les bâtiments, là où une ombre opaque eût attristé où un soubassement eût détruit la sensation d'espace—cette théorie de lumière, base de notre architecture, c'est pour baigner le coeur, le chauffer, le réjouir; intention au delà de celle de n'être qu'étroitement utile.*)

Every missionary has to repeat his leading notion. In *Une maison—un palais,* halfway through the description of the League of Nation project design, while expounding the qualities of the real estate and the site at the lake shore, LC eulogized the "sun from below," not exactly in verse but in terse profound lines. He develops a counterproject to the conventional chunky block of a palace (such as that actually built on the Perle-du-Lac site by Nénot of Paris, Flegenheimer of Geneva, and other consulting architects). "To prove their dignity, such bastions of academism would have to be furnished with fortress-like subterranean vaults," says LC,

Whereas here: the sun flows through underneath,
the garden runs through underneath
the gaze glides across the whole: from single spots
of the upper site one will be able to look through under
the Secretariat building and see the
shimmering mirror of the lake;
there never will be any damp cellars or lightless places.[25]

(*On pense: un palais, pour être digne, doit avoir des soubassements de fortresse.*
Ici: le soleil passe dessous,
le jardin passe dessous,
la vue passe au travers; du haut du terrain on verra
par places scintiller le lac, sous les bâtiments du secrétariat
et il n'y aura jamais de locaux humides ou sans lumière).

Not only is this leading notion injected into the book's middle[26] and repeated toward its end,[27] but the wording tends to repeat itself, as for instance *passer dessous* and *passer au travers.* And at the end, this incisive litany is directed against that which must never be allowed to occur again: the subterranean, the musty, and the dark.

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We are led to think that LC was proud of the historical origins of his family, which saw itself as descended from the Catharist sect, from the Cathars or Albigensians who in spite of the hardest persecutions were able to establish themselves in southern France until the fourteenth century, and who, being distant theological descendants of the Manicheans and the Gnostics, had to hold their ground in a world split in two by the forces of evil. To separate good from evil, to ensure the good and to "purify" it was possible only through rigorous asceticism. (*Catharsis* in Greek means "purgation"; Cathar means "pure one," someone ready for the struggle and sacrifices necessary to save the good in the world.)

Is LC's mission to purify architecture a repercussion of this family tradition? Isn't his youthful proclivity to asceticism, his constant reiteration of demands such as for the *pur* (pure) and the *sec* (dry, also in the sense of sober, harsh, and blunt), a harking back to these religious origins? In this case, is not the cellar, everything musty and dark, a reminder of the threatening satanic half of the world his ancestors had struggled to overcome, undergoing gravest suffering and sacrifices?

Seen from this perspective, what we call the sun from below acquires a religious tinge, hints at the history of religion. Certainly, one can insist on reading LC's baring to light the cube's sixth side that normally rests on the ground, unseen and untouched by light, as a purely aesthetic articulation of the typically modern spirit of the times bent on total exposure. But where do the excessive tendency to repetition, the obstinacy, the hammering demands come from that distinguish LC so emphatically from his like-minded contemporaries? This surplus of missionary zeal can most aptly be explained on the grounds of his family's Catharist saga.

Only at the end of the second Argentine lecture, referring to the *assiette même du lyrisme,* does LC draw our attention to the fact that he intends to use pilotis not only for individual buildings such as the Villa Savoye or for groups of buildings such as those of the League of Nations Palace, but for urban architecture in general. He passes over in silence, however, the fact that the universal use of pilotis to save urban architecture had already played

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an important part in his first professional phase, in the confrontation with Auguste Perret, the pioneer of building in concrete.

Once again, at the end of the second lecture, LC confronts the old house "anchored in the ground" and the new house raised above it (figure 96). He states that he can imagine pilotis used in buildings of ten, twenty, or fifty stories: "Up on top there are the roof gardens for promenades and hygiene. But down below are the pilotis. . . . The balconies have formed a second street: the street for pedestrians and for lighter vehicles. The trucks are below. The urban canalization is visible, repairable, easily reached by the eye and the hand."[28] (*En haut, sont les jardins de promenade et d'hygiène. Mais en bas sont les pilotis. . . . Les balcons ont fait une seconde rue: la rue de piétons ou des voitures légères. Les poids lourds sont en bas. Les canalisations de la ville sont visibles, réparables, à portée d'oeil et de main.*)

The Cathar brings to light the hidden humid matter below the ground so as to drain it and make it visible. Yet this concept has its own prehistory under the key term *Ville-Pilotis* (city on pilotis), to be distinguished from Perret's contrasting term *Ville-Tours* (city of towers). Seven years before *Précisions,* in *Vers une architecture* (1923), LC illustrated the longitudinal section of the new city, so to speak (figure 97), whose cross section he sketches now in Argentina. The caption of the longitudinal section dates it eight years earlier still: "LC. 1915 LES VILLES-PILOTIS. The city grounds will be raised by 4 to 5 meters by the pilotis, which serve as pile-work for the houses. The city grounds thus become a sort of platform base, the streets and walking paths a kind of bridges. Underneath this platform base, immediately within reach, are all the other organs that hitherto were buried and inaccessible—water, gas, electricity, telephone, pneumatic post, sewers, district heating, and so on."[29]

In the *hors-sol-city* raised above ground, on the level of the soil will be placed only heavy traffic and the hitherto buried tube systems for supplying energy and removing wastes. On the pile-work on top, pedestrians and lighter traffic will find freedom and security. This dream goes as far back as LC's years of apprenticeship and travel.

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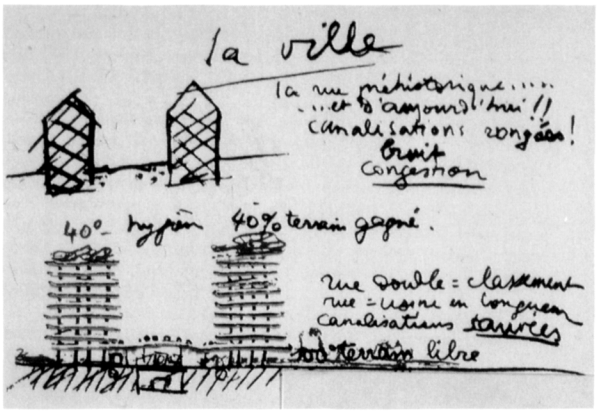
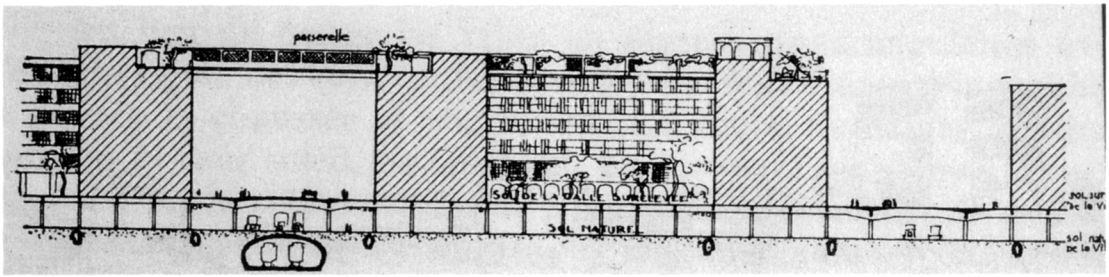
96, 97
The house on pilotis as LC sketches it in Buenos Aires (96) has its own prehistory in LC's Villes-Pilotis (97), which go back not just to 1923 but to 1915.





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After his first study trips to Florence, Siena, Ravenna, and Budapest (1907), LC stayed six months in Vienna; then in 1908 he traveled via Strasbourg and Nancy to Paris, where he worked for one year and three months in the architectural office of the brothers Perret. Yet as far as previous research on LC has determined, this apprenticeship period with the pioneer of concrete, completed when LC was twenty-one or twenty-two, had nothing to do with the later controversy between master and apprentice concerning the possible value of the tower or the platform on pilotis as a model for the future European city.

The high-rise building, or skyscraper, which had begun to make great strides in North America's big cities, was slow to be accepted in Europe. This is easy to understand. European cities were not only older but had highly individual profiles. To place apartment towers in midst of such profiles would not only have literally debased proud churches, domes, and cathedrals, but would also have threatened the established combined profile of countryside and building substance, often richly articulated over the course of many centuries. It seems that only after the shock of the First World War, and the intensified demands of the avant-garde or modern movement that immediately followed, did high-rise building become a burning question for Europeans.

The expanded range of guns and the new possibility of aerial bombardment meant the war of 1914–1918 was destructive of the countries' interiors and even of their big cities. Architects were faced with the question of how the urgent rebuilding was to be managed in terms of materials and construction. Young LC, reacting to the first destruction in Flanders in September 1914, develops the "Dom-ino" skeleton construction system.[30] For its part, the artistic avant-garde is all the more stimulated by the atrocious consequences of the Great War to demand a new lifestyle, a new architecture, a genuine modernism. It can no longer avoid the question of whether high-rise construction had to be included in the programs of rebuilding, even if as a makeshift solution. In connection with this critical problem, a young architect like LC is bound to develop doubts about American attempts at

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high-rise architecture, and therefore he begins to look for a European form of vertical construction.

Exactly this problem occupied LC in his discussions with his former teacher Perret. As against LC who conceived his proposed *hors-sol-city,* his Ville-Pilotis, his reform from below, as the clearing of the ground area and the elimination of cellar holes, Perret proposed his tower city. When Perret finally set out to present the problem, previously discussed only in words, in a perspective drawing by Jacques Lambert (figure 98),[31] LC faced a conflict of loyalty. To be sure, with respect to the buildings' spacing he agreed with Perret. Both wanted to avoid the wild, American-style, crystallike growths that shot up the highest wherever real estate values were highest. Thus LC could not withhold his approval of Perret's formula of the "high-rise avenue," but two other aspects of Perret and Lambert's proposal were bound to irritate him decisively. First, Perret did not show any intention of incorporating into his plans LC's ideas of reform from below. Second was the justified suspicion that Perret followed all too closely the partly traditional American examples and could not achieve fully that degree of *clarté cartésienne* that seemed indispensable for the city of the future.

When Perret published Lambert's drawing in the magazine *L'Illustration* of August 12, 1922, LC's vision of the future city had already moved from the mere avenue ahead to vast overviews and total perspectives. Only a few weeks after Perret's article appeared, LC stepped into the limelight and presented his Ville Contemporaine (contemporary, or better, up-to-date city) for the first time in the Salon d'Automne of 1922 (figure 99).

Truly, this group of skyscrapers, meant to house three million inhabitants, elicits visual surprise even today. In total contrast to the American urban silhouettes, LC's high-rise buildings are isocephalic, that is, they are of equal height. LC dramatizes this distinctive feature in his perspective drawing by using a very high vanishing point. The gaze glides precisely along the top line of the uniformly high buildings. In other words, the city skyline and the line of the horizon coincide. The towers seem to be hanging from a clothesline. Exaggerating a bit, one could read them as bell clappers hanging down, instead of buildings standing high. The subtly chosen perspective, a refined equipoise between a normal frontal recessive view and a bird's-eye view, connects the actually enormous buildings with the surrounding hilly

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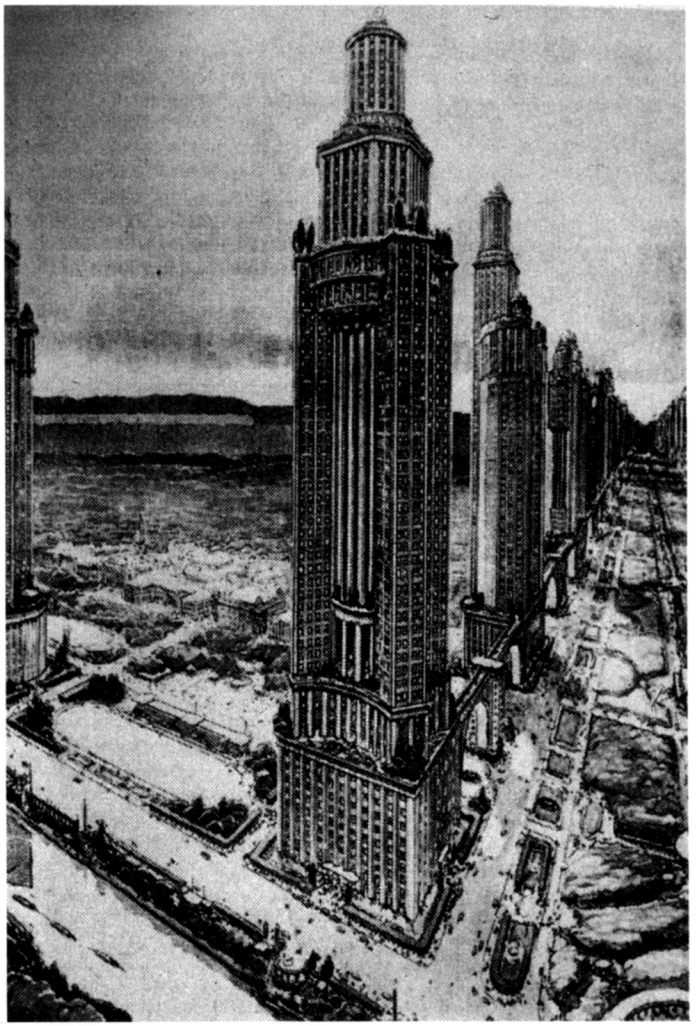
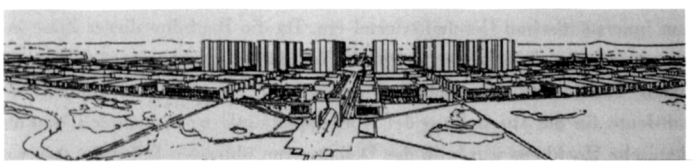
98, 99
A conflict of loyalty. Auguste Perret publishes his Ville-Tours (Tower City) in 1922 (98). The disappointed LC exhibits the Ville Contemporaine (99) in the same year, offering a totally different form and grouping of towers.





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landscapes seemingly easily, and, as suggested above, it also make the towers appear light, like cardboard hanging on a clothesline. The near obsessiveness of the vertical uniformity and the insistent repetitiveness of the total city plan that looks like a taut rug, woven of bilateral and central symmetrical axes, are softened and subside into the background.

Such observations take us far afield. So as not to overextend our inquiry, we have to decide not to follow any farther the urbanist LC, who from 1922 began to appear regularly as such in public. We thus leave open the question whether the thousand-times-applied Dom-ino schemata (which will occupy us next) need have led to that monotony or mega-ornamentation for which the Ville Contemporaine has been much reproached. We also have to leave a second question unanswered, that of its political admissibility. For only an enlightened despot would have been able to twist around the conditions of property ownership at that time in such a way that the urbanist LC might be able to realize this plan. This is why, in moments of wishful thinking, LC frequently invoked Colbert, the powerful minister of finance of the Sun King. At times Colbert took the place of LC's alter ego. He became the silhouette of LC's projection into a figure equipped with unlimited power and capable of guiding humankind for its own good, especially when it does not comprehend this or does not want it realized yet.

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Let us therefore, like the proverbial shoemaker, stick to our last. And let us decide—not in the metaphorical sense but literally—to go on observing the understructure, inasmuch as LC tried to change it. Let us keep to the frog's perspective instead of the bird's-eye view. As we have already noted, the understructure occupied young LC first. His whole interest was originally focused on it. Let us follow in their temporal sequence all his proposals that have to do with reform from below.

The Dom-ino System, 1914–1915

"The intuition works through unexpected illuminations. Here, in the year of 1914, we have the pure and total concept of construction."[32] (*L'intuition agit par éclairs inattendus. Voici en 1914 la conception pure et totale de tout un système de construire.*) These two sentences were written retrospectively fifteen years later, when LC, barely forty-two years old, dared to publish the first volume of his collected works in 1929. The publisher was Dr. Hans Girsberger in Zurich, the editors Willy Boesiger, who continued to sign as the editor responsible for most of the following volumes, and Oscar Stonorov. What a risk, what a sense of mission, what a burden to be tied to the expectation of further equally interesting volumes to follow! But, as is well known, LC willingly bore this burden and upheld his ambitions until the end.

But let us get back to the unexpected illuminations, the *éclairs inattendus* that he claims to have experienced in 1914–1915. Did this kind of lightning and illumination really come out of the blue, simply because LC seemed to believe it did? A historian cannot forgo entertaining such questions. Were there nevertheless some unknown grounds, certain preconditions, early imprints that predestined this young craftsman, painter, hobby architect, since 1913 a drawing teacher certified by the canton of Neuchâtel, for this kind of illumination in 1914–1915? I advisedly apply the Calvinist concept of predestination to this Jurassian educated as a Calvinist. But I do this as a historian, in a secular way, by sleuthing further—this being one of the motives of my book—for experiences and events in LC's youth that could make at least a part of his *éclairs inattendus* understandable and explainable.

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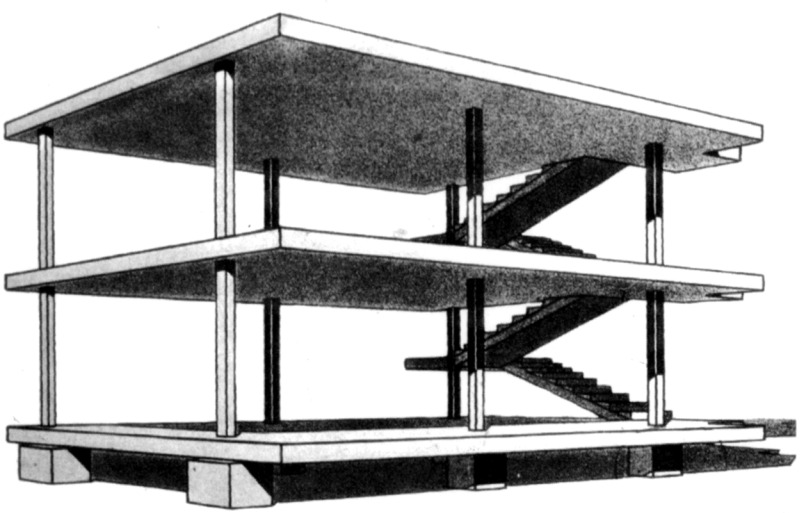
But let's look back at the "pure and total concept" of the Dom-ino system itself (figure 100). Two of his closest partners in this debate took a skeptical or even depreciative stand toward this ideally beautiful model, and their views will occupy us, but this apparently had no adverse effect on LC in the long run (unless one reads self-evaluations such as "pure and total" as defensive reactions against critical responses). My description of the years 1914–1915 deliberately brings into the discussion details from LC's private sphere and his parents' statements.[33] For what appears as his initiatory phase as an architect is filled not only with astonishing concepts but also with nagging self-doubt and highly justified ideas of escape.

In 1913, as mentioned, LC received the cantonal certificate to teach drawing, something that was intended to add stability to his teaching activity. However, at the outbreak of the war in 1914, the new section at the School of Crafts of La Chaux-de-Fonds was suddenly closed. L'Eplattenier, its admired founder, resigned, and his former students and teaching colleagues at that time, Georges Aubert, LC, and Léon Perrin, were turned out onto the street.



100
LC's Dom-ino system, 1914–1915, was certainly a bolt from the blue. LC wanted it patented as an invention but failed, because it is a masterpiece of analysis rather than one of invention.

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LC claims to have conceived his skeleton construction Dom-ino system in the same year. Although simple and even apparently self-evident, the system runs up against great difficulties in the way of its realization. LC tries again and again to apply it and to draw from it the most important kinds of new freedoms for modern architects. As the justification of this construction with armored concrete, which he believes would be cheap and easy to realize, he cites "the first destructions of the Great War in Flanders in September 1914" (*les premières dévastations de la grande guerre dans les Flandres en septembre 1914*).[34] He would like to take part in the rebuilding activities, applying the then newest building material and construction method, which he believes will prove significantly inexpensive due to the standardization that comes from their use.

In 1915 two building projects are started in his hometown in which he is involved: a cinema hall, Scala, for an audience of 1,100, and a villa for the industrialist Anatole Schwob. The diary of LC's father shows that in spite of the difficulties of the war LC visits Paris several times; he fights to patent the Dom-ino idea, and for this he needs the support of Max Du Bois, who has established himself in Paris with his own firm SABA (*Société d'Application de Béton Armé*). Evidently, LC would like to be part of this firm, in order to find some sort of income in Paris.[35]

The war does not hinder LC from looking up his former teacher Auguste Perret, one time in Paris and another time, in the summer of 1915, also in the south of France in the district of Var. Because he hopes to get building commissions in Flanders he seeks the advice of the then most prominent expert in the techniques of concrete, and therefore does not shrink from the tiring trip to the south. "In 1915, I present to Auguste Perret the constructions for 'Dom-ino' (standard, series, industry) and also the Villes-Pilotis" (*En 1915, je soumets à Auguste Perret les constructions "Dom-ino" (standard, série, industrie) et les Villes-pilotis*). "Perret finds the system interesting but unsuitable for factories, schools, public buildings" (*Perret trouve le système intéressant mais inutilisable pour les usines, écoles, bâtiments publics*).[36] A sobering reaction.

The prospects look bleak in all directions. Not only because Perret holds out little hope; the building projects in his hometown also give rise to grave tensions. On November 2, 1915, LC writes to his counselor and

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fatherly friend William Ritter: "Consequently, my well-meaning mother draws from all of this a conclusion quite unspeakable for me: you cannot stay in La Chaux-de-Fonds, you are unpopular. She adds: you are someone who once put on great airs, who published those newspaper articles from the Orient [that appeared in the *Feuille d'Avis* of La Chaux-de-Fonds in 1911], then got himself turned out on the street by the art school, then came the workers' revolt, the banding together of the employers, the slipping on the coattails of the clients. . . . This is what mothers of architects are driven to by these bleak days of the winter's approach."[37] (*Pour lors, ma bonne maman en tire la plus ineffable* (*pour mois*) *conclusion: Tu ne peux pas rester à La Chaux-de-Fonds, tu es unpopulaire. Elle additionne: l'autrefois grand chapeau et grand manteau, les articles d'Orient, l'Ecole d'Art-foutre-à-la porte, la révolte des ouvriers, la coalition des patrons, le glissement sur l'aile des clients. . . . Voici à quoi ces tristes jours précurseurs d'hiver conduisent l'esprit des mamans d'architectes.*)

On November 6, 1915, LC's father complains in his diary about the miserable state of his business, praises his industrious wife Marie (who gives piano lessons) and his son Albert (who is successful giving rhythm lessons as taught by Dalcroze), and finds himself in close company with his son Edouard: "Edouard is as badly off as his father, he has a great problem, because his ideas are suitable for other regions, not for our small town of La Chaux-de-Fonds."[38]

One month later, on December 2, 1915, on the occasion of his own sixtieth birthday, LC's father's perspective becomes even bleaker: "Today I finished my sixtieth year; that would make me an 'old man' and, in fact, I am one. The war and what devolved from it have crushed me; I have only one wish left and that is to give up my profession as quickly as possible. What good would it do to go on and not to earn anything in the process, and to continue to drag this burden that wears me out physically and morally from morning to night; I am drifting on like a lost soul and only increase my troubles. I look like a poor old wretch. Everything disgusts me. But my family goes on working. Marie and Albert are well occupied; with her music lessons my wife is still the driving force and keeps us all moving along. Edouard is also in a bad spot, without real work, but still does not give up."[39] (*J'atteins aujourd'hui soixante ans révolus; me voilà un 'vieux' and j'en suis bien*

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un! La guerre et la situation qui en est découlée pour moi m'ont aplati; je n'ai plus qu'un désir c'est de liquider mon métier au plus vite. A quoi sert de continuer à ne rien gagner et traîner ce boulet qui me ronge du matin au soir, physiquement et moralement. J'erre comme une âme en peine, grossissant encore les ennuis; j'ai l'air d'un pauvre bougre! Je prends tout en dégoût. Et pourtant les miens travaillent. Marie et Albert sont bien occupés, ma femme est encore toujours le ressort qui nous permet de marche encore. Edouard aussi très mal en point, sans travail effectif, mais il résiste.)

In 1916 LC's most important building before the move to Paris, the Villa Schwob—called *Villa turque* by the townspeople—is progressing (figure 13). As shown in the isometric sketch (figure 14), LC is trying to test here a special form of the Dom-ino system, and it hurts him badly. The cost estimate is massively exceeded. A war by letter and telegram begins, and on January 26, 1917, the client terminates the contract with a registered letter. So as not to lose all influence on the building, LC tries in two letters to contact the industrialist's wife, to praise her sensitivity for the special qualities of the villa, and to give her advice for the design of the garden.[40]

When his father later said of the Scala and the Villa Schwob "he lost some feathers there instead of earning his living" (*il y a laissé des plumes au lieu d'y gagner sa vie*),[41] one can well imagine that LC would have put this much more vehemently. It is astonishing that the strongest passages he wrote about this were not addressed to the compassionate William Ritter but to the cool Max Du Bois, who showed himself helpful for the move to Paris but, as becomes apparent later, at the same time hindered LC's further progress: "At all costs, Du Bois, please, help me to extricate myself from this town. If I can set myself up in Paris I will become a different person. But here there is too much to stomach. Here one has to prove oneself to the tenth degree. It's a total aggravation of all possible suffering. God Almighty, one has to clench one's fist inside one's pocket and clench one's teeth almost to the point of biting off one's tongue."[42] (*A tout prix, Du Bois, aidez-moi à me dépêtrer de cette ville. Si j'établis un pied-à-terre à Paris, je suis un autre homme. Mais ici, il faut trop ravaler. Pour ici, il faut faire de la dixième qualité. . . . C'est juste l'aggravation de toutes souffrances. Dieu de Dieu, il faut faire le poing dans sa poche et se mordre la langue au point de se la couper.*)

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Yet this is only one front of LC's war; the other lies in Paris and there things look even worse. By November 17, 1915, LC had executed all the drawings necessary for the Dom-ino patent. Du Bois, however, fills the required formulars and turns in the application for the patent on January 11, 1916. Another half a year goes by, and Du Bois reapplies as late as September 1916. Then on November 17, 1916, Du Bois, E. L. Bornand, and LC sign an agreement for a collaboration.[43] This agreement is a small consolation against LC's hope in the spring of 1916 that as soon as Dom-ino was patented, Du Bois would be ready to found a new firm that would be combined with SABA. To be sure, LC leaves La Chaux-de-Fonds when Scala and the Villa Schwob are finished and finds a minimal base in Paris, but at the end of 1916 the Dom-ino project is definitively abandoned.

What prevented Du Bois from fully endorsing LC's idea to be patented? In his old age he gave the following information: "The idea was not patentable . . . a simplistic idea that I had had without ever going deeply into it, but which Jeanneret with his youthful fervor had decided would be the revolution" (*L'idée n'était pas brevetable . . . idée simpliste que j'avais eue sans l'approfondir, mais avec un enthousiasme juvénile, Jeanneret avait décidé que ce serait la révolution*).[44] From the point of view of the engineer's profession he was right: it was not a patentable idea; among the innumerable possibilities for the use of concrete this technique was just about the most insignificant, one that was not worth pursuing further. It was a simple-minded variant for naive dreamers. But if one thinks of the new freedom it gave for a new organization of space on each floor, of the possibility of letting the facade simply hang—that is, if one thinks of what architects call architectural questions—then Dom-ino looked completely different, as if it had a double face, a Janus aspect. Hence, both men were right: this was a rare case of twofold readability or *ambiguité,* and both Jurassians were obstinate enough to fight in silence for longer than two years from their opposite positions.

1917: the generally accepted opinion that although LC left La Chaux-de-Fonds looking back in anger, he joyfully anticipated his move to Paris, does not fit all facts. Actually, he was doubly humiliated when he definitively settled in Paris on October 4, 1917. The art school and his two clients in his hometown had turned him out on the street. His hope to become an associate of his engineer friend, to work together to stage the needed urban rebuild-

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ing on a big scale, to become an entrepreneur himself, to establish the serial production of houses like a second Taylor or Ford on an assembly line, all that had collapsed as well. LC's bitterness is expressed in his letter of farewell to William Ritter: "I am leaving. Filled with bitterness and powerless in the face of knavery and vileness, I weep over my country. I abandon the people. I have come full circle."[45] (*Je pars. Et abreuvé d'amertume et impuissant devant les roueries et les saletés . . . , je pleure le pays. Je plaque les gens. Le cycle se referme.*)

So far we have attempted to present a short cross section of the everyday concerns of this family of four. The mother is resolute and clever, unafraid to be the first to express unpleasant truths. The father is certainly trustworthy but increasingly depressive: his shop for enameling watch cases and watch faces, which he took over from his father, will have to be closed in 1918, because his competitors have modernized their production methods and ruined his business. Nevertheless, in this crisis, made even graver by the war, he stands his ground insofar as he is able to complain and to keep his ability to articulate his troubles.

The Villes-Pilotis and the Watercolor of La Tène, Both Dated 1915

As evident from the observations of LC's father, his younger son, LC, was hard hit by the family's financial difficulties, harder than his older brother Albert. But the insistence of his teacher L'Eplattenier, that his favorite student, LC, ought to point his manifold talents for the visual arts in the direction of architecture, began to take effect.

What we can call his initial charge of 1915 manifested itself not only in the ideal Dom-ino concept for the individual house but also in his urban concept of the Ville-Pilotis (figure 97). The two innovations are related like basic element and total conception. Dom-ino (figure 100) is the new module with which the city can build new kinds of vertical and horizontal parallelepipeds, with which the city could even be lifted out of its damp cellars in order to found a "dry" *hors-sol-city.* All this, the individual invention as well as the total concept, rests on the development of the technology of ferroconcrete and steel concrete by Western industry. No more stacking up of small units, no piece-by-piece layering of stone after stone and of brick after brick as for thousands of years before. Instead, two casting processes: that of iron,

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101
Charles Humbert, portrait of LC in 1916, about one year after the "unexpected enlightenment," meaning his Dom-ino system.

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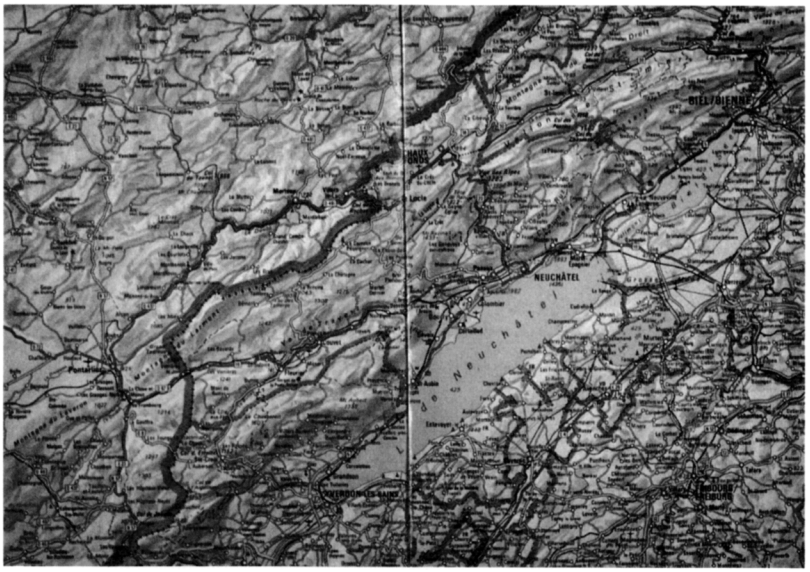
102
Topographical map of the Lake Region at the foot of the Neuchâtel and Bernese chains of the Jura.



which afterward acts as a skeleton, and that of concrete, which is poured to form an outer envelope and in a short time attains unusual hardness. We know that into this magic garden (of transforming something fluid, soft, and viscous into something superhard) LC was initiated by Auguste Perret and Max Du Bois. Du Bois, however, played a double role: in his conversation with Eleanor Gregh (quoted above) he claimed that the Dom-ino concept was his own invention, yet he dismissed it as something insignificant, thus reducing LC's role to that of collector of secondhand notions. This role, of which LC was hardly fully conscious, is one feature of the complex phase he passed through in 1915, and it activated his inclination to distinguish between poor and rich building materials and to ruminate about this "class difference" among building materials. He not only insisted on an ideal type of module, which real specialists in concrete discounted as insignificant; he also knew for certain that in the eyes of the general public, concrete, compared with granite or marble, counted as a "low" material, as a kind of outsider, of humble origins, whose only recommendation was its altogether frightening and even seemingly brutal resilience.

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Yet, we must never forget, LC kept on drawing and painting "on the side," and not only with architecture as his subject matter. All of his activity "on the side" hardly ever forced itself into prominence and did not seem to create any problems. Perhaps this is the forceful heritage of a youth spent in the provinces, on the outer fringe of a culture, isolated by language and by the surrounding mountains. L'Eplattenier was a generalist not out of embarrassment or out of weakness, but out of passionate conviction and on theoretical grounds.[46] And the same was true of LC himself: he continued to paint by himself every day in the morning regardless of all possible distractions, before driving to the architectural office in the afternoon.

In the same decisive year of 1915, what held his interest as a painter was, astonishingly enough, his native Lake of Neuchâtel and the Lake of Bienne fed by its waters. In addition to the highlands of his own mountain valley, LC made numerous watercolors of the shorelands of these two large lakes of the Swiss Lake Region. The locations of four examples (figures 103–106) of this group cannot be established with certainty but doubtless belong in this region, at the base of the Jura mountain chain. Figures 103 and 104 are neither signed nor dated (FLC 4071, FLC 2876); figure 105 (FLC 4084) is inscribed on the back, *Lac de Bienne, mars 1915,* but no precise location is indicated; figure 106 (FLC 2879) is also not identified. In my opinion, the main piece of this group, as far as subject matter and quality are concerned, is the watercolor figure 107 (FLC 4088). On the back it is localized and dated in pencil, *La Têne* (*lacustre*) *1915 ou 16?*

La Tène lies at the outflow of the lake into the river Thielle, which runs parallel to the hill Jolimont as it carries its waters toward the Lake of Bienne, and it is not a village but an archaeological site. Moreover, in its way it was already world-famous in professional circles in 1915, at the time it was sketched by LC. The concept *lacustre* that he added in the inscription has two meanings in French. For the zoologist it describes the living organisms native to freshwater lakes; for the archaeologist it signifies a primitive way of dwelling, either directly on the shore or on platforms erected in shallow waters on piles above the water surface.

The name of the site and the addition of *lacustre* clearly indicate that LC is depicting not just any group of rotting piles, but remnants and witnesses of a distant historical epoch. The landscape is gently ashimmer in wintry

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103–106
Four sketches by LC from the decisive year of 1915, done in the Lake Region.

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hues of rust-brown and brownish violet; the piles are mirrored in the still waters; in the background on the right are to be seen the Montagne de Boudry and the peak Creux du Van that mark the entry into the Val de Travers. (Val de Travers, by the way, is where Jean-Jacques Rousseau found refuge in the village of Môtiers in 1762 after being banished from Paris and Geneva.)

However, neither the motif nor the time of year of this watercolor is the result of pure chance. The Neuchâtelois painter Rodolphe-Auguste Bachelin (1830–1890) had drawn the motif of the leaning piles at the outflow of the Lake of Neuchâtel thirty years earlier (figure 108) to illustrate the cover of an archaeological work, *Les Helvètes à La Tène,* by E. Vouga (Neuchâtel, 1885). Bachelin too seems to have drawn during the cold season, under a gloomy sky. This is easy to explain. It was a well-known fact in earlier times in the Lake Region, and not only among fishermen, that especially in winter, when the water level was lowest, the mysterious piles became fully visible.

LC knew Bachelin's name and certainly also his work. Bachelin was not only a painter but also a historian and a writer (two of his novels, *Jean Louis* and *Sarah Weyss,* were in print), a prominent figure in Neuchâtel. Just the fact that he was actively engaged in the founding of the Neuchâtel Historical Archaeological Society would have sufficed to give him this prominence. He, too, was a generalist, just as L'Eplattenier was, and as LC was to become a generation later.

But how does this young man manage to devote time and effort to this lonely shore down in the Lake Region when he is battling with two recalcitrant clients at home, when he is traveling to Paris and the south of France, and while he is nursing the intention to escape from his native region?

The next possible fact that drew LC to that spot is that his older friend William Ritter (figure 109) had recently moved into the vicinity. Together with his companion for life Janko Cádra, Ritter had been forced by the war to return from Munich to his hometown of Neuchâtel. The two partners, who never covered up their homosexual attachment and in spite of the prejudices of that period lived undisturbed in large cities such as Munich, Vienna, and Prague, first stayed at the home of Ritter's family in Monruz above Neuchâtel. Later, during the settlement of the family estate, Ritter ran up against opposition in Neuchâtel (and found a friendly reception only at the Federal

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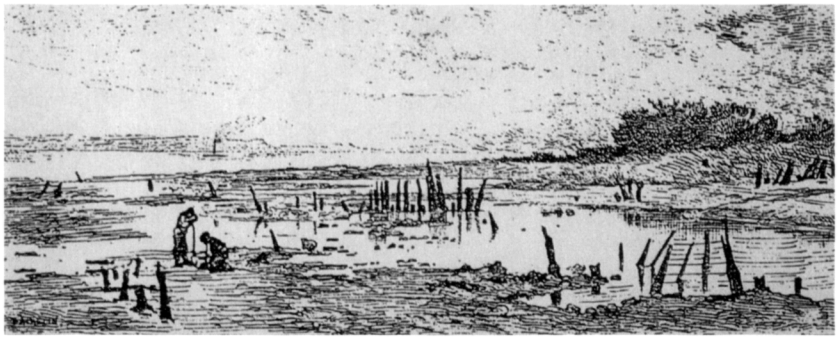
107, 108
The most brilliant watercolor in this group from the Lake Region has the somewhat enigmatic title *La Tême* (*lacustre*) (107)—and there is in fact a deeper historical significance behind it. R. A. Bachelin had already drawn this motif three decades earlier (108).



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109
William Ritter, LC's fatherly friend, sketched by him in 1917.

Library in Bern), and one can assume that his stay at the spacious family residence in Monruz became too confining. Ritter and Cádra then moved to Le Landeron, a small medieval town in the moorland between the two lakes, right next to the border between the French-speaking and German-speaking regions of Switzerland.

LC's correspondence with William Ritter, the longest and largest in his life (preserved in the Swiss Federal Library in Bern), shows an astonishing increase during these months of LC's upswing in 1915 and 1916. LC's long letters now grow even longer and deal largely with ideological questions, but the professional dilemma of the multitalented young man is also brought to the attention of his friend without hesitation. What ideally would have been a father's role, and had been filled over several years by L'Eplattenier, now was transferred to Ritter. He is LC's third and, as far as I can see, his last father figure. In addition to the weekly letters, at least two or three postcards a week arrive in Le Landeron (conveying news that today would be exchanged by telephone). Should he bring along his skis? Will there be time for painting and drawing the day after tomorrow? Doubtless, the two friends searched

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often for scenes to sketch together. This region, not yet built up at that time, extending between Le Landeron and La Tène and adjoining the Great Moor, had become the favorite domain of the painter Albert Anker and seems to have been congenial to the temperament and the abilities of the two friends. Hence, I would not be surprised if in Ritter's estate also were to be found a watercolor of the piles of La Tène done by him. For reasons of his own biography he was especially attached to this motif, as will be shown later.

In any case, we can safely predict that such a watercolor by Ritter would hardly have matched the quality of his younger friend's sketches. For, although Ritter was an industrious draftsman, in his painting he was less disciplined and less independent than in his handling of words. As a writer he achieved a considerable reputation, and his last four books, *Prague nocturne* (1896), *Fillette slovaque* (1903), *Leurs lys et leurs roses* (1903), and *L'entêtement slovaque* (1910), were part of LC's library in Paris.

The letters show that in LC's eyes Ritter was an accomplished cosmopolitan correspondent. Endowed with brilliant language skills, he had lived for long periods in central and eastern Europe and was a connoisseur of the Balkans, a fact that made him the most important advisor in the planning of LC and Klipstein's trip to the Orient in 1911.[47] Then, the two Neuchâtelois Ritter and LC, whose families had been slightly acquainted, got to know each other in person only as late as 1910. Ritter earned his living as a cultural correspondent for French and Suisse-Romande magazines and newspapers. He covered everything: festivals, concerts, operas, and art exhibits. His interest in art seems to have been boundless—another important generalist in LC's life. Their relationship remained alive for such a long time doubtless because Ritter possessed a rare quality: the noblesse of an unselfish listener.

In the preface of the first volume of the *Oeuvre complète,* written in September 1929, LC mentions the names of those teachers, masters, or friends whom he retrospectively deems especially important for his years of study and apprenticeship: "In my native town, I was fortunate to have a master until 1907, L'Eplattenier, who was a fascinating pedagogue; he was the person who opened the doors of art to me. . . . I remember the modest library housed inside a simple closet in our drawing studio, in which our master had assembled all that he deemed necessary as our spiritual sustenance."[48]

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(*Jusqu'en 1907, dans ma ville natale, j'ai eu le bonheur d'avoir un maître, L'Eplattenier, qui fut un pédagogue captivant, c'est lui qui m'a ouvert les portes de l'art. . . . Je me souviens de cette modeste bibliothèque, installée dans une simple armoire de notre salle de dessin et dans laquelle notre maître avait réuni tout ce qu'il considérait nécessaire à notre nourriture spirituelle.*)

After expressing his appreciation of Auguste Perret, LC turns to his friend William Ritter: "In the confused period when one begins to know people, when one leaves behind one's school years in order to throw oneself with confidence into the great game of life . . . I found an older friend who accepted willingly my insecurity and my puzzlement. He did not believe in Cézanne and even less in Picasso, but this did not pull us apart. . . . His heart was overawed before the phenomena of nature and the battles that tear people asunder. Together we wandered through these great landscapes that are filled with historical significance—the lakes, the high plateaus, the Alps."[49] (*Dans la période trouble où l'on apprend à connaître les hommes, où l'on quitte les années d'études pour se lancer avec confiance dans le grand jeu de la vie . . . j'ai trouvé un vieil ami pour accueillir mes incertitudes, mes étonnements. Il ne croyait ni à Cézanne et moins encore à Picasso, mais cela ne nous séparait nullement. . . . Son coeur était en transes devant les phénomènes de la nature et les luttes qui déchirent les hommes. Nous avons parcouru ensemble de grands paysages de significations historiques—lacs, haut-plateaux, Alpes.*)

The fact that LC gives such a high place to the lakes of his native region, and counts them among the great landscapes of historical significance, is something of a surprise, and we will address it farther on. The second surprise is that in midst of the battle years of an avant-garde that was inimical to history or at least emphatically critical of history, LC tips the scales in favor of history in the following passage of this preface: "If I had to admit that my hand is dirtied by the refuse of centuries, I would still prefer washing it to cutting it off. The past centuries do not dirty our hands; on the contrary, they fill them with riches."[50] (*Si je devais reconnaître que ma main est salie des rebuts des siècles, j'aimerais mieux toutefois la laver que la couper. Les siècles ne salissent d'ailleurs pas nos mains; au contraire ils les remplissent.*) We cannot but marvel at the manifold and multilayered interconnections of young LC's interests. Even burdened by grave professional problems, he shows himself imbued and inspired by the significance of his larger natural and human surroundings.

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Naturally, his move to Paris on October 4, 1917, changed also his former network of relations. From the point of view of his parents, LC disappeared for two full years into the twilight. First they were in fear because Paris was in danger of military attacks. Then they realized that they no longer knew precisely his professional development, and his father began to record their worries about their son and his state of health in his diary.

1918, March 30. "The Germans are shelling Paris with a canon of 120 km range!! We are worried about Edouard's fate." (*Les Boches tirent sur Paris avec un canon qui porte à 120km!! On est inquiet du sort d'Edouard chez nous.*)

May 22. "From Edouard only scant news, we don't know what he is doing" (*D'Edouard nouvelles peu détaillées, on ne sait pas ses occupations.*)

1919, April 2. "We got a letter from Edouard. He is reduced by fatigue . . . he has thrown himself into all sorts of undertaking . . . he aims too high." (*Reçu une lettre d'Edouard qui est extenué de fatigue . . . lancé dans toutes sortes d'entreprise . . . il embrasse trop.*)

1919, August 24. "Finally he turns up at home again. Edouard, whom we have been expecting for so long, arrived from Paris with a friend—Mr. Ozenfant—in good health, except for his left eye, which has suffered some damage." (*Edouard, que nous attendions depuis longtemps est arrivé de Paris avec un ami—M. Ozenfant—, en bonne santé, sauf l'oeil gauche qui est endommagé.*)

1919, September 4. "Our Edouard has left again for Paris . . . his obstinate optimism . . . he has big deals in mind. . . . We are much indebted to his friend Ozenfant, for he has given him back to us." (*Notre Edouard vient de repartir pour Paris . . . son optimisme tenace . . . il a de bien grosses affaires sur le bras. . . . Nous sommes bien attachés à son ami Ozenfant qui nous le rend.*)[51]

Through the help of his new friend LC's parents have got back their son. Where had he been? We might say, on the other shore, and about this he was not willing to inform even his relatives prematurely. In fact, the years 1918 and 1919 were a leap into another world, far away from Max Du Bois, far away from reinforced concrete, and through this very leap he became Le Corbusier. From an entrepreneur and standardizer of urban rebuilding he suddenly turned into a *painter,* or put more precisely, he became a painter *again.*

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This transformation or reconversion happens very quickly. Auguste Perret, the architect and pioneer of armed concrete, who had first encouraged LC but later advised him to drop the patenting of the Dom-ino system, now acquaints him with the painter Amédée Ozenfant. This contact produced a burst of creativity. On November 15, 1918, the two friends put on their first exhibition together and at the same time publish, or rather launch, a text cannonade with the title "Après le cubisme" (to call it a pamphlet or manifesto would be too tame an appellation). Its aim is to set down as drastically as possible the difference between the new art and new way of life and what went on before the war. Cubism, which dominated the avant-garde from 1907 till 1914, is shown to be decadent. The necessary new movement, embodied in the paintings of the two friends, is called "Purism."

What no one would have believed possible does indeed happen: the arrogant big-city scene takes notice. Both the paintings and the text are taken seriously. A well-known painter, Fernand Léger, six years older than LC, becomes their ally and supports these two new voices. In 1920 Ozenfant and LC, together with Paul Dermée, found the magazine *L'Esprit Nouveau,* which calls not merely for a new art but for a whole new style of life.

Within three years, 1918–1920, LC finds his own style as a painter, his own language as a critic and theorist, and his theme as an apostle of the new spirit of the period. Yet he forgets nothing, he takes up all his previous concerns again. Viewed from the other shore, the cause of reinforced concrete comes again into focus, and soon enough it is fully taken up. Completely unimpeded by any of the customary limits between the genres, LC always daringly approaches everything as a whole. This is the very thing one wants from him, and although for several decades he is opposed, he is also increasingly respected.

Repetitions of the Initial Motifs until 1930

- 1923. An illustration of the Ville-Pilotis as a section dated 1915 (figure 97) appears in the book *Vers une architecture.*
- 1928. The bird's-eye sketch "Villa au bord de la mer (Côte d'Azur)" shows the first type of a building on stilts raised not only above the ground but also above water (figure 5). LC publishes the drawing in *Une maison—un palais.*
- 1929. In volume I of the *Oeuvre complète,* covering the years 1910–1929, he

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includes once again the bird's-eye sketch of the Côte d'Azur villa on page 45. Here it faces a "Villa à Paris," which represents the same type of house but elevated only above ground. Both sketches are dated 1922–1927. As mentioned, the same volume also presents LC's key proposition of recovery of the built ground and the city ground (*récupération du sol bâti et du sol de la ville*). This concept acquires a special meaning because the design for the League of Nations project of 1927 forces the intactness of the soil into the foreground. Also, LC's October 1929 lectures in Argentina further differentiate between a restitution (*reconquis*), referring to the ground area, and additional gain (*gagné*), referring to the roof area (figure 4). LC's insistence on such a romantic motif leads us to expect that further pilotis sketches will appear in the Argentine lectures when they are published.

1930. In fact, when these lectures appear in print in *Précisions* further pilotis variants beyond those we have discussed (figure 96) come to the fore. The administration building of the Palace of the League of Nations is compared with a steamboat, a graceful cruising past the hills on the shore: architecture as a ship's launching (figure 110). The Dom-ino system is invoked once again, this time shown more pointedly from the frog's perspective and confronted with the building tradition of Flanders (figure 111). At the bottom of this sketch is written *thèse de la maison à sec* (thesis of the house on dry land).

Only in the second-to-last Argentine lecture, where problems of enlarging Paris and Buenos Aires are compared, does LC take up the question of building on pilotis on land and in the water, this time on a grand scale (figure 112). "Why do I make this gigantic platform out of ferroconcrete, raised on pilotis in the waters of the Rio? Because I am moved by pity for Buenos Aires's inhabitants, who are blocked in a city without hope, without a sky and traffic arteries . . . and because I think it the wisest, most elementary solution to open the city toward the sea."[52] (*Pour quoi ai-je fait cette immense plate-form de ciment armé juchée sur pilotis dans les eaux du Rio? Parce que je me sens une grande commisération pour les gens de Buenos Aires bloqués dans une ville sans espoir, sans ciel et sans artères . . . et parce que je trouve de la plus élémentaire sagesse que la ville ouvre sur la mer.*)

The idea of placing high-rise buildings in the water fascinates LC so much that he begins to depict the same buildings at night and as seen from the water (figure 113)—as he saw the city for the first time arriving by ship.

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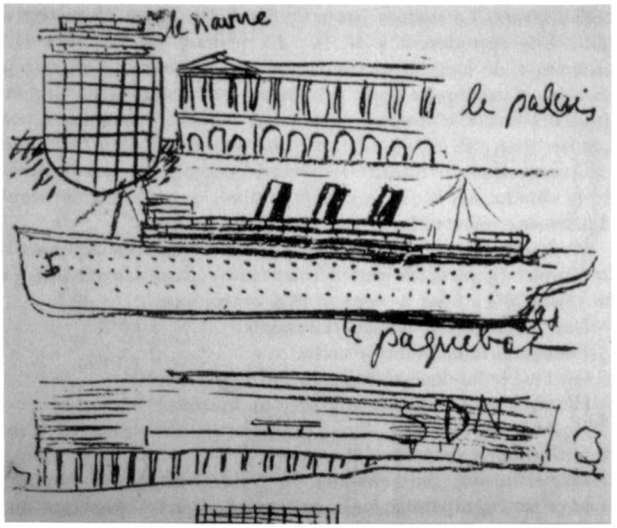
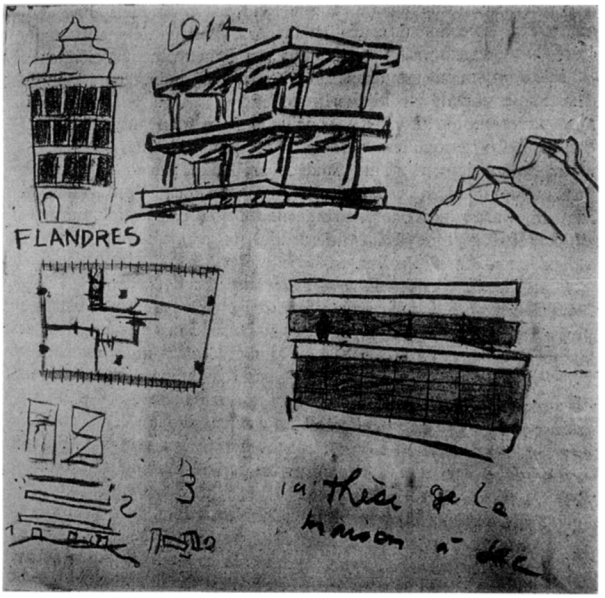
110, 111
Further varieties of structures with pilotis, from *Précisions.* The house above the ground recalls a ship's launching (110); the Dom-ino system is contrasted to the building tradition of Flanders (111), whose wartime destruction was supposed to be repaired by the Dom-ino system.





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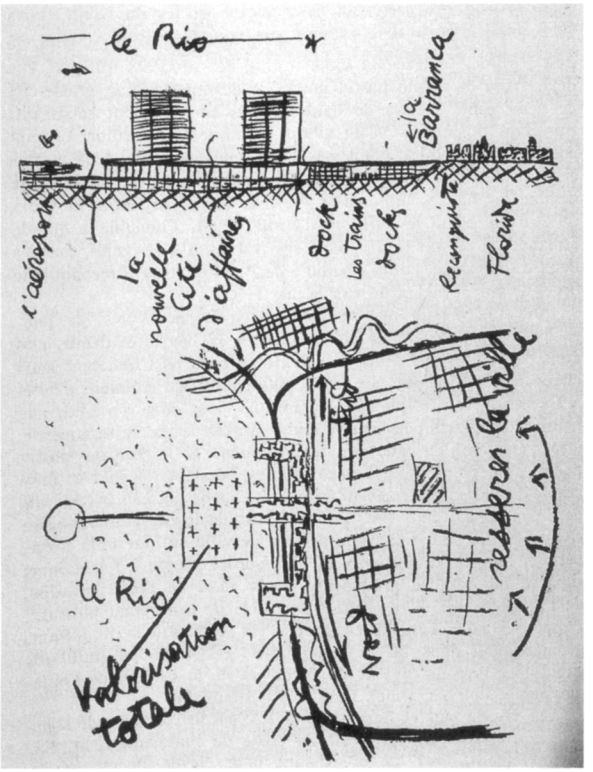
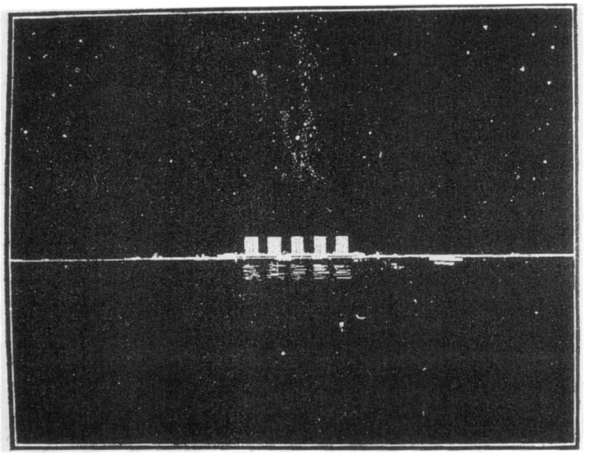
112, 113
What does LC propose for the city of Buenos Aires? Buildings on pilotis above the water on a grand scale, seen first as "technique" (112) and then as "poetry" (113).





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"I have prepared this large sheet of blue paper," he tells his audience, "dark blue in the upper part and in the lower part only a bit lighter blue . . . With a single stroke of yellow chalk I draw the endless line of the city lights I saw at my arrival. With the same yellow color I draw five skyscrapers two hundred meters high, in a beautiful formation along the shoreline, moving me so deeply since they vibrate with light. . . . In the water of the Rio I draw illuminated buoys and in the Argentine sky the Southern Cross in front of millions of stars."[53] (*J'ai préparé cette grande feuille de papier bleu, sombre dans sa moitié supérieure, légèrement plus clair en dessous. . . . D'un trait de pastel jaune, je trace la ligne infinie des lumières que j'ai vu déjà à mon arrivée. Avec ce même pastel jaune, je dessine les cinq gratte-ciel de deux cent mètres de haut, alignés sur un front saisissant, ruisselant de lumière. . . . Dans l'eau du Rio, je dessine des balises lumineuses et dans le ciel argentin, la Croix du Sud précédant les millions d'étoiles.*)

This is how LC pulls along his listeners with his well-prepared didactic approach that has a spontaneous impact and the sweep of a continuing process. With all that swing, he nevertheless has to draw very carefully at one special point of the night sketch—the dark line of the far-away wispy outline of the high-rise buildings was not to be smudged over by the yellow pastel. Since this imaginary view pleased him as much as his audience, he decided to use it on the cover of *Précisions.*

Three decades later, in September 1961, during completion of the Parliamentary Building of Chandigarh, LC was busy designing the enamel gate with which he wanted to decorate the building as a present from the architect, himself, and from the French government. As Mogens Krustrup describes most engrossingly,[54] LC planned to paint the revolving door on both sides in an enamel technique—the very one that had constituted his father's professional métier. To begin with, LC wrote a letter to Pandit Nehru, prime minister of India, requesting to be told what symbols would most aptly represent the Indian people's tradition. Nehru was nonplussed and could not make any useful suggestions. LC then decided to sketch the signs most important to him personally that emerged in the context of his experience of India. Krustrup shows how LC first decided on a set of four concepts—nature, man, cosmos, and number—and subsequently made these more concrete: sky, earth, man, and number. In comparison with similar such tasks earlier on, namely, the enamel doors for Notre-Dame-du-Haut in Ron-

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champ, here an astonishingly vast reservoir of allegorical images and symbolically more or less applicable visual signs unfolded in calendar-like compositions in LC's notebook, showing him at the age of seventy-four at yet another height of his imaginative resources. A filtering process was unavoidable, and the outcome of this arduous work is of the utmost importance to us, because it shows what the old master retrospectively deemed essential.

Yet we are not astonished that once again the pilotis section of the house above ground reappears, proving thus a resistant enough sign to make it into the final selection (figures 114, 115). What is mysterious is its immediate neighbor on the right: a six-pointed blue area, asymmetrically distended and at one point lightly nicked in. Krustrup is able to prove that this area signifies the Lake of Geneva. This identification would hardly be of great help for the townspeople of Chandigarh or Delhi if they were not acquainted with the region of the Suisse-Romande. In other words, the abstract geometric version of the Lake of Geneva attains only the allegorical level of signs that depends on mediation and further levels of meaning, while the pilotis schema next to it at least refers to the place of Chandigarh, to the locally applied and known construction method, and is thus easier to read and more apt to take on a symbolic function. Once we identify the corners of the blue area as Vevey, Villeneuve, and St. Gingolph (top) and Amphion, Escenevex Bay, Geneva, and Nyon (bottom), the only astonishing thing left is that, whereas from the point of view of cartography the Lake of Geneva appears as a leaning crescent shape, in LC's version it is oriented to a vertical straight axis. But this is evidently done on compositional grounds and is much easier to explain than why, in LC's recollection in his old age, the pilotis schema appears so clearly connected to the motif of the Lake of Geneva.

Does it suffice to say that the League of Nations project on the Lake of Geneva was the only large-scale project on pilotis that he ever designed fully for execution? This does not seem quite convincing enough, and we will have to look for further horizons to help us realize why the hymn of praise to the Lake of Geneva is so important for LC that, even in the vast plains of the distant Orient in Chandigarh, at the foot of the Himalayas, he endeavors to celebrate it in enamel. This is why we turn once again to the Song of Songs in his Argentine lectures where, under the title of the techniques of art, and specifically of poetry, he invokes the League of Nations project as the *assiette même du lyrisme.*

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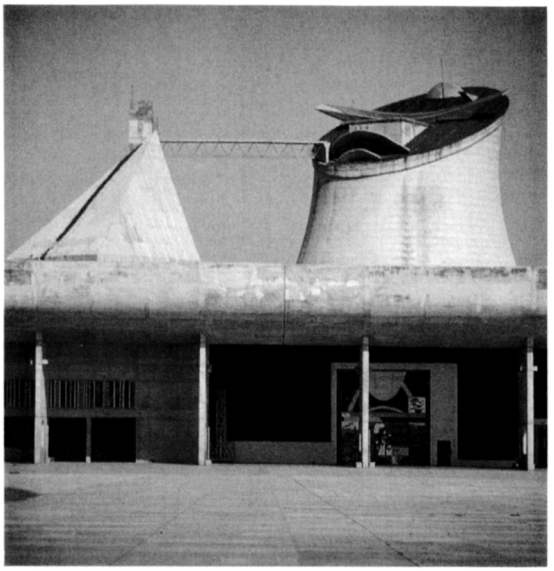
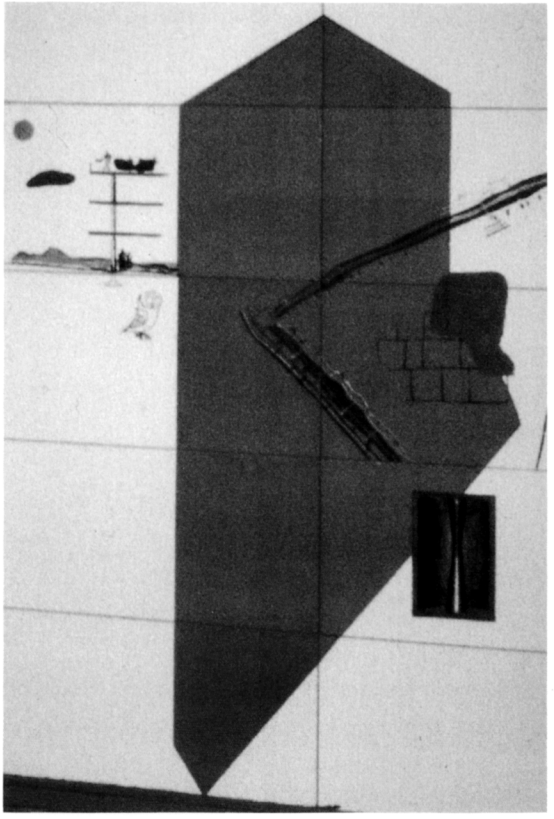
114, 115
The enamel gate of Chandigarh, painted by LC himself. Approach to the Parliament Building, gate at bottom right (114). What symbolically suggestive landscapes and building constructions does the seventy-four-year-old architect choose? The landscape of the Lake of Geneva, which he stylizes into an asymmetric heptagon (115), and the construction principle of the pilotis, which he sets at the top left, approximately where the house he built for his parents is located in Corseaux-Vevey.





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In fact, LC has one more stop to pull after praising the pilotis and the sun from below while he describes the special other view under the buildings toward the lake and praises the "picture segments" (*panneaux*) cut out through the staccato placement of pilotis. First, he harks back to the "various rolling hills" that characterize the building site: "the vast glades sloping off all around and covered with gigantic trees which are the pride of the citizens of Geneva" (*d'immenses pelouses inclinées tout le tour et parsemées d'arbres gigantesques, objets de la fierté genevoise*).[55] Now he continues entranced as if transported into a daydream: "Flocks are grazing here and there. This touching rustic scene that takes us back to the sensitive texts of Jean-Jacques Rousseau—*under no circumstance do I want to disturb it.*" (*Des troupeaux paissant par-ci par-là. Ce touchant spectacle agreste qui nous reporte aux pages attendries de Jean-Jacques Rousseau je ne veux pas le troubler.*) "Nevertheless" (*Pourtant*), LC continues, by way of a contrast he is building gigantic buildings like the Musée Mondial and still others for this region. All of this is possible because he resorts to a future principle of urbanism: that whatever takes place on the ground should serve conclusively for the circulation of traffic, and what takes place up in the air inside the buildings should serve exclusively for work. Right at this point he turns again to Rousseau. "However, for the moment I preserve the grass and the herds, the century-old trees, and all the fascinating views across the landscape; and above that in the air, on a chosen even plain, on a horizontal ground of concrete elevated to the height of the pilotis (which for their part descend down reaching for their ground)—there I erect the transparent and pure cubic units of utilitarian buildings; I am uplifted by an elevating task; I set the squared buildings and the surrounding spaces into their proportioned relation; I compose atmospherically."[56] (*Pour l'instant je conserve l'herbe et les troupeaux, les arbres séculaires et toutes les échappées ravissantes du paysage, et, en l'air, à un niveau déterminé, sur un sol horizontal de béton juché au haut des pilotis qui descendent, eux, là où ils trouvent leur base, j'élève les prismes limpides et purs d'édifices utilitaires; je suis soulevé par une intention élevée; je proportionne des prismes et les espaces qui les entourent; je compose atmosphériquement.*)

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This is probably the longest sentence in that book, overcharged with grandiloquence, yet I hope to make it understandable. It is to be read as LC's breathless, enthusiastic whispering into Rousseau's ear. With two new aspects added: the pilotis are here described as descending, or, two paragraphs farther on, as diving down (*pilotis qui descendent . . . plongeant*),[57] as if they were not supports but bell clappers or hanging sticks; and the interpolated exclamation "I am uplifted by an elevating task" sounds like an involuntary admission that in the decision in favor of the pilotis was involved not just the circulation of traffic nor just the humid cellar, but something quite higher that perhaps can be approached with the concept of levitation. With two almost sacerdotal sentences he seems to come to the end, but, no, once again the level of combat is transposed to the present, this time to the example of Weissenhof in Stuttgart by means of a drawing that is supposed to prove with its intentionally naive, childlike strokes (figure 116) that the pilotis theory functions everywhere, even on the steepest site. These two sentences and the subsequent amen we don't want to miss for the world: "Everything participates: the herds of sheep, the blades of grass and the tiny flowers in the foreground that one steps on and caresses with one's eyes, the lake, the Alps, the sky . . . and the divine proportions. Thanks to the pilotis, nature's ground can be preserved and poetry remain intact on this Acropolis devoted to meditation and to intellectual work. . . . What a grace, what a blessing, and what economy!"[58] (*Tout y participe: les troupeaux, les herbes et les fleurettes du premier plan, que l'on foule du pied et que l'on caresse de l'oeil, les Alpes, le ciel . . . et les divines proportions. Et grâce aux pilotis, sur cette acropole vouée à la méditation et au travail intellectuel, le sol naturel demeure, la poésie est intacte. . . . Quelle grâce, quel bienfait et quel économie!*).

Finally, in this chapter of *Précisions,* the name has been mentioned that can elucidate the meaning of the strange conjunction (on the enamel gate of Chandigarh) between the pilotis design and the Lake of Geneva: Jean-Jacques is in the eyes of the Jurassian *the* great Genevois, educated in that town, in his adolescence chased out and left stranded before its closed doors, then again well received and supported, and in the end definitively banned.

The same Jean-Jacques is also the writer who discovered the exceptional beauty and symbolic power of the landscape of the Lake of Geneva and who eulogized it, down to its smallest detail, first in the novel *Julie, ou la*

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A sketch by LC in *Précisions:* the pilotis theory works in every location, even in the roughest terrain.

Nouvelle Héloïse (1761), and then in his autobiographical *Confessions,* published, after his death, in 1782. And this beauty and "innocence," and the natural dignity of the basin of the Lake of Geneva, LC believes he can save by his concept of pilotis.

Seen thus, there is a sort of trinity in LC's conception: *Rousseau's* principles, the *pilotis* schema, and *Lac Léman* belong together; they mutually presuppose and support each other.

The picture of the *hors-sol-city* as he developed and fought for it from 1915 has thus noticeably shifted. Here outside the city the flight from the musty cellars does not have to be justified by the need for sanitizing the sewage systems and solving traffic congestion. We are in the midst of park scenery in the area of Perle-du-Lac, and LC allows himself to invoke sheep herds and even the name of their shepherd, who can pass through undisturbed—to everyone's amazement *under* the buildings—and can freely move about in midst of nature that is unharmed and intact and at one with poetry that is equally unharmed and intact (*poésie intacte*). The contrasts LC strives to unite in the name of his trinity seem at first enormous. But when one includes the texts we discuss here, it seems at least possible to take Rousseau and his country idyll into consideration in elucidating LC's competition project for the Société des Nations.

Among his drawings entered in the competition are two kinds of representations, one emphatically linear, that is, free or devoid of shadows (e.g., SdN sheets 4–14), and the other enriched by refined delicate shading with an intense plasticity and an expressly "painterly" effect (e.g., SdN sheets 15, 16, and 17). The delicate shading in the second kind is produced by airbrush techniques. An area of finest dots, interspersed accidentally with other

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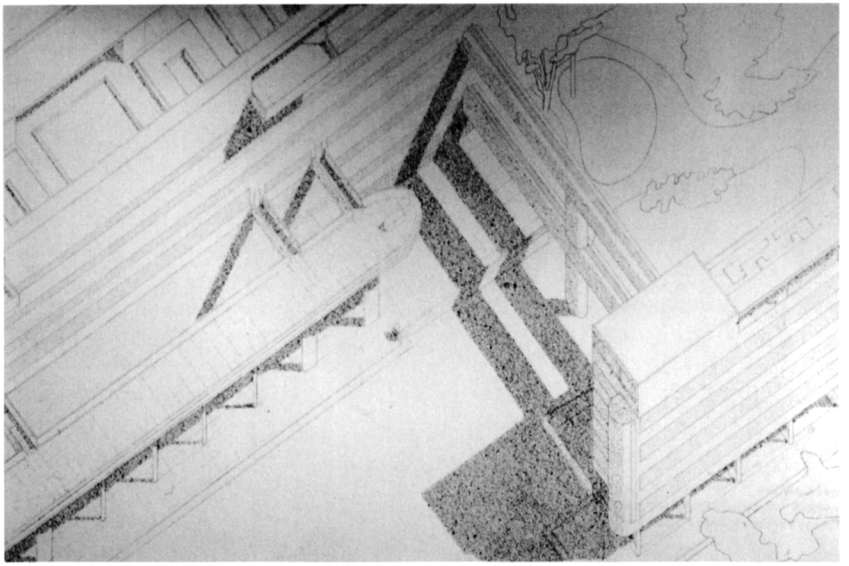

117
League of Nations, sheet 15 from LC's competition drawings. The delicate shading produced by a spray technique makes it clear: the "airy grove of pilotis" is "composed atmospherically."

coarser dots, becomes a veillike, soft shadow, such as we can see on closer inspection in a section of SdN sheet 15 (figure 117; "axonometric view seen from the West"). Looking at that, one can conceive a title for a novel like *House of Gossamer.* LC, Jeanneret, and their collaborators have done their utmost to place the "airy grove of pilotis" into the park site in such a way that even a herd of sheep would effortlessly find its way in this atmospherically composed site (*je compose atmosphériquement*).

The organizers of the Geneva competition did a lot to communicate the quality of the Perle-du-Lac site to the participating architects. However, they tried to suppress the emotionally toned or sentimental aspect of the Rousseau cult through the choice of photographs representing the site (figures 118, 119). The definitive competition program (of April 17, 1926) was "printed in the format of a large luxurious map and was sent out according to a precise schedule so as to reach the participants all over the world on the same day."[59] This map contained as an appendix an aerial photograph of the Perle-du-Lac area and remarkable detail photos from the park that were taken by J. Boissonnas, chief of the Department of Buildings. In his way, LC conferred on Boissonnas's photograph the honor of printing it (reversed!) in

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118, 119
The building site for the Palace of the League of Nations at Perle-du-Lac—"this park with its verdant architecture." Aerial photograph (118) and trees (119, photo by J. Boissonnas), from the competition program.

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Une maison—un palais. In short: "With all means available, everything was tried to present the project as convincingly as possible, since from this site that recalls a Rousseauesque Garden of Eden, the fate of the world was supposed to be directed. . . . Already at the building of the [adjacent] International Department of Labor, the ideal location of the site had been pointed out: Now, it [Switzerland] donated the most beautiful of all sceneries—this park with its verdant architecture."[60]

When the competition was launched, Geneva was thoroughly aware of the Rousseau-toned quality of the lakeside region. Yet there are a great many levels and contradictions among the attitudes deriving from Rousseau's work, from mawkish and sentimental worship of nature to most qualified critique of culture. That work has survived for two hundred years from its publication to the present with ever-increasing repute. Goethe was justified in his daring sentence about his older fellow-writer: "With Rousseau begins a new epoch."[61]

Our thesis, and it should no longer surprise our readers, is that, being a serious connoisseur and admirer of Rousseau, LC aimed at nothing less than transposing Jean-Jacques's body of thought into the language of architecture. That even at the beginning contradictions were bound to surface in the process can be shown especially clearly by the airbrush drawing of the League of Nations project (figure 117). To preserve or save the innocence of the landscape, LC had to enlist the highest standard of building technology at that time. Raising the building off the ground was possible only with the help of concrete and its ferro-armature. Thus nature's innocence was saved by the most advanced technology! This contradiction remains, and perhaps it contributes to the mysterious fascination of SdN sheet 15.

Jean-Jacques and Charles-Edouard, or, Are Such Far-flung Connections Credible?

Rousseau referred several times to the decisive initial impact of his "illumination of Vincennes." The publication of Diderot's free-thinking letters had led to Diderot's imprisonment, and Rousseau, being his friend, set out to visit him in the city prison in the Castle of Vincennes, walking in the October heat of 1748 all the way from the center of Paris to its outskirts. In his second letter to his patron Malesherbes, Rousseau reports how he stopped to rest in the shade and leaf through the magazine *Mercure de France.* His

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glance fell on a notice of the Academy of Dijon announcing a writing competition for a treatise, or discourse, on the theme, "Whether the resurgence of the sciences and arts has contributed to the purification of morals?" One year later, in 1750, this discourse earned Rousseau the first prize and initiated a turn in his fortune fraught with many consequences. In his words:

If anything ever resembled a sudden inspiration it was this movement that surged up in me. Stunned as by a blow I felt my spirit blinded by a thousand lights, countless vivid ideas coursed through me with a force and suppleness that threw me into an unspeakable confusion. My head is ablaze as if I am drunk. My violent heartbeats threaten to suffocate me. I can no longer breathe and throw myself down under one of the trees along the road. I spend there half an hour in such an excitement that when I stand up I find my vest soaked with tears. Oh, my God, if only I could have written down a fourth of what I felt under that tree, with what clarity I could have explicated the contradiction of the social order, with what rectitude I could have proved *that man is good by nature and that men become evil only through our institutions!* The little I could hold fast of this profusion of great truths which illuminated me under that tree, is to be found in a reduced form scattered in my main works. In this way, without thinking about it, almost against my will I became a writer.[62]

The phrase that is decisive, and that Rousseau himself called the core of his "illumination," reads, "that man is good by nature and that men become evil only through our institutions" (*que l'homme est bon naturellement, et que c'est par ces institutions seules que les hommes deviennent méchants*). "Institution" is to be understood here as an establishment, as an educational enterprise, as an association, in short, as a corporation that institutes rules.

The Parisian society of that time, permeated by ideas of the Enlightenment yet profligate and self-indulgent as can be, pricked up its ears and took notice. Now an unknown, an outsider entered the scene and hurled a clear "No!" against it, though it considered itself the most advanced version of society there ever was. At that very moment it was about to launch the *Encyclopédie* as the compendium of everything known and practicable at that time, and now, suddenly, it was declared to be on the wrong path!

Naturally, critiques of society have always existed in one form or another, and bitter debates have been fought over whether or not a certain tribe,

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group of tribes, state, church, or class was on a dubious path or capable of averting its own demise. Rousseau scholarship itself often refers to the fact that some of Rousseau's arguments are clearly anticipated in classical antiquity by the Cynics and certain Stoics like Seneca, and in the Bible by Solomon, certain prophets, and specifically by Jesus in the Sermon on the Mount. "As suddenly as Rousseau's 'discovery' appears in public, it is thoroughly prepared for in Calvinist-Jansenistic and gentlemen's morality." Nevertheless, Rousseau "gave to the insights of Montaigne and the Moralists their sharpest point. He radicalized them and gave them a turn that no one had thought of."[63]

What does this radicalization consist of and what turn does he thus propose? A first possible answer: Rousseau intensifies the turning back to the beginnings of history but with novel modern arguments. He maintains that the *original* goodness of man is preserved only as long as no private property is claimed and no division of labor is introduced. Rousseau's fresh turn I see in his view that any man who sees this and recognizes the corruption of man-made institutions has to act as a personal witness against this evil and run personal risks in combating it. Only in and through one's own innocence, *which was fully present in one's childhood* and which speaks in the adult from afar as memory and conscience, can one confront this enemy.

Jean Starobinski formulates Rousseau's new and surprising turn, understood as a personal reaction to the deep crisis of society, as follows: "It is the conflict with an unacceptable society that gives such an important function to intimate personal experience. . . . Rousseau desires *exchange* with the Other and *the transparency* of hearts, but he is frustrated in his waiting, and by choosing the opposite he finally accepts—and even elicits—*the obstacle* [that blocks any exchange and transparency]; this in turn makes it possible for him to pull back into a passive resignation and to the certainty of his own innocence."[64] (*C'est par le conflit avec une société inacceptable que l'expérience intime acquiert sa fonction privilégiée . . . Rousseau désire la* communication *et la* transparence *des coeurs; mais il est frustré dans son attente, et, choisissant la voie contraire, il accepte—et suscite—*l'obstacle; *qui lui permet de se replier dans la résignation passive et dans la certitude de son innocence.*)

The simple basic idea, the fulminant "No!" to the institutions of a society corrupted to the utmost by the insistence on private property and the division of labor, is thus caught up in a complex pattern of individualistic

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and partly resigned behavior. But this very complexity, combined with one's own readiness to suffer, is understood immediately by that epoch: Rousseau, who actually views himself as a music teacher, music theorist, and composer, has at his command such literary competence and such fluency as a writer that, at least from 1750, he easily reaches his reader on a subconscious level, and just as easily matches and even surpasses the intellectual standards of his weightiest adversaries. While the invocation of historical beginnings, *the casting an anchor into the primeval,* at first appears to be a clear and simple matter (which is an illusion), the behavioral pattern of consequences and reactions unfolds like a painted fan. The fan is held together by this one pivotal point, but can be opened wider and wider and thus always brings more and more paradoxes, expectations, and disappointments.

Rousseau's transvaluations and reversals are often so designed that they displease only the well-to-do and speak to the hearts of the disadvantaged. Thus his reversal from pride in being educated to his disappointment in culture is noted in Paris, the capital, as a failure, but is favorably received in the provinces. But things are not that simple, and his cards not that easily read. He really called his epoch's attention to its obscured or repressed zones, above all to the qualities of the child, the primitive, and ordinary people. His transvaluing program is masterfully compressed in two sentences in the *Confessions:* "I was so bored by salons, beds of flowers, and even more boring owners of all that, I was so tired of pamphlets, pianos, the game of ombre, theater intrigues, inane bon mots, tedious affectation, petty gossipers, and big dinner parties. When I cast a furtive glance on a simple, humble thornbush, a hedge, a barn, a meadow, when I passed through a hamlet and caught the aroma of an omelette, when I heard in the distance the refrain of the goatherd's songs, then I wished all make-up, garters, and ambergris would go to blazes."[65]

The depth of Rousseau's provocation that has kept him relevant over two hundred years cannot be explained solely by these transvaluations or by his discoveries of new domains. How he shapes his arguments and with what degree of competence he advances them are equally important. To be sure, he is an enemy of the sciences and arts, yet he is well educated (even though for the most part autodidactically). To be sure, he fights against the exquisite cunning of courtly refinement, yet he himself obviously possesses

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an exquisite refinement in the handling of images and in drawing conclusions. To be sure, he attacks the bombastic empty rhetoric of many of his contemporaries, yet he resorts to a *lean* kind of rhetoric of his own to amplify his alternative arguments.

If we ask why he has to provoke so strongly, to transvalue so profoundly and accuse so sharply, we find that biographical research, which in his case has made it a point not to miss anything, has a whole series of answers or surmises, from the whole spectrum of suffering encountered on a seemingly glorious ascent from the provinces to Paris, to the tangled course of his unmethodical, autodidactic education on the way to becoming a qualified music theorist and composer. In truth, Rousseau starved and suffered for many years without attaining real success. "His numerous attempts to break through to the public failed. Why on earth did he have to waylay fortune, to remain without rights, a parasite against his will?"[66] He associated with Diderot and Condillac, but his opera *Les muses galantes* and his musical *Les fêtes de Ramiro* (both 1745) remained marginal events. In 1749 he was commissioned by the editors of the *Encyclopédie* to write some articles on music, but three years earlier his financial situation had become so precarious that he sent the first child born to him by Thérèse Levasseur into an orphanage—and later four more children by Thérèse were sent there as well. In other words, when he wrote the first discourse in 1749–1750 and was awarded the first prize for it, he found himself doubly ruined, both in his financial and his artistic ambitions, and if this were not enough, he was convinced that he had only one year left to live.[67]

Hence, the prize competition of Dijon came as a welcome opportunity. When in his letter to Malesherbes he writes about his "illumination of Vincennes" and reports that "when I stand up, I find my vest soaked with tears," we can safely conclude that the thirty-seven-year-old Rousseau wept not only tears of happiness and gratitude but also of outrage and revolt. His plan for a musical career had failed, and why? Because such ambitions represented altogether false values, because other completely different values—namely, those of his childhood—represented the real values. Seen against Rousseau's everyday misery, the illumination of 1749 gave him permission to open two emergency exits previously closed to him. First, he was now free to and forced to *project;* that is, to declare his own suffering a problem for

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all and before all. Second, he could and had to question his whole adult being, and have the courage to become the Jean-Jacques he had been in his childhood and innocence.

What, of all that, has a deep significance for us now, that is, for LC, for the visual arts, and especially for architecture and urban building? The main thing, it seems to me, is what I described as *the casting an anchor into the primeval.* Jean-Jacques's redirection to the past, which proved to be a program of transvaluation or total reversal, consists in his no longer taking as his point of departure what has been achieved (through civilization) but what has been lost in the depth of history (through the corruption of institutions). Instead of measuring the world by its achievements, he measures present conditions against *their first origins.* He transports himself to that earliest imaginable time where the cast anchor of his projections landed, and he begins to measure from there. He measures the distance—that is, the alienation—of things and beings *from their point of origin.* He measures from this one imaginary point from which all devolves, radially along the fan's ribs down to the conditions of the present that open before his eyes wider and wider.

To illustrate this phenomenon, here are some lines from that "picture of primeval time whose history I boldly outlined." This picture, this history is to be found in the second part of the second discourse (*On Inequality,* 1755). How did he find the confidence to maintain boldly that he knew more about the developments of early history than others? We have dwelled on the preconditions of his certainty about his competence. Nevertheless, let us take another look at the special circumstances of his writing. In his posthumously published *Confessions* he reports on this in the eighth book, which covers the period of 1748–1755.

I soon got the chance to develop them in a work of the greatest importance, for in the same year of 1753 appeared, as I believe, the [second] competition program of the Academy of Dijon: "On the Origin of Inequality among Men." This big question impressed me, and I was surprised that the Academy had dared to pose it, but since it found the courage to do so, I too could venture to treat the question; and I undertook it. In order to be able to think undisturbed about this great subject, I started on a short trip of seven or eight days to Saint-Germain, together with Thérèse, our landlady, who was quite a fine woman, and one of her

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lady friends. I count this excursion among the most agreeable ones of my life. The weather was glorious, and those fine women took care of all the work and the costs: Thérèse cheerfully passed the time managing all that, and I, free of all cares, appeared only at mealtime, to recover without ceremony in their company. The whole rest of the day I spent *deep inside the forest* and sought and found there the picture of primeval time, whose history I boldly outlined. I mercilessly uncovered all the petty lies of men, I ventured to bare their nature down to complete nudity, to show their distortion through time and things, and, by comparing man as he became among other men with man as he was by nature, I showed to him that the source of his misery lies in his alleged perfection. My soul, uplifted by such elevated observations, was transported to the side of the Divine Being, and seeing from there how my fellowmen, blinded by prejudices, treaded on the path of error, suffering, and crime, I called out to them in a weak voice, which they were unable to hear: You fools, who constantly complain about nature: realize finally that all your sufferings have their origins in yourselves.[68]

(*J'eus bientôt occasion de les développer tout à fait dans un ouvrage de plus grande importance; car ce fut, je pense, en cette année 1753, que parut le programme de l'Académie de Dijon sur* l'Origine de l'inégalité parmi les hommes. *Frappé de cette grande question, je fus surpris que cette Académie eût osé la proposer; mais, puisqu'elle avait eu ce courage, je pouvais bien avoir celui de la traiter et je l'entrepris. Pour méditer à mon aise ce grand sujet, je fis à Saint-Germain un voyage de sept ou huit jours, avec Thérèse, notre hôtesse, qui était une bonne femme, et une de ses amies. Je compte cette promenade pour une des plus agréables de ma vie. Il faisait très beau; ces bonnes femmes se chargèrent des soins et de la dépense; Thérèse s'amusait avec elles; et moi, sans souci de rien, je venais m'égayer sans gêne aux heures des repas. Tout le reste du jour, enfoncé dans la forêt, j'y cherchais, j'y trouvais l'image des premiers temps, dont je traçais fièrement l'histoire; je faisais main basse sur les petits mensonges des hommes; j'osais dévoiler à nu leur nature, suivre le progrès du temps et des choses qui l'ont défigurée, et comparant l'homme de l'homme avec l'homme naturel, leur montrer dans son perfectionnement prétendu la véritable source de ses misères. Mon âme, exaltée par ces contemplations sublimes, s'élevait auprès de la Divinité, et voyant de là mes semblables suivre, dans l'aveugle route de leurs préjugés, celle de leurs erreurs, de leurs malheurs, de leurs crimes, je leur criais d'une faible voix qu'ils ne pouvaient entendre: "Insensés qui vous plaignez sans cesse de la nature, apprenez que tous vos maux vous viennent de vous."*)

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Rousseau's retiring into the forest of Saint-Germain sounds as if he had in mind a sentence by Giambattista Vico in his *New Science* that abridges the course of history in a cogent and amusing way: "The order of human affairs progressed in this way: at first there were the forests, after that the huts, then the villages, later the cities, and finally the academies."[69] Rousseau retired into the depth of the woods to meditate on man's advance first to huts and later to villages and cities. Obviously this path is important also for LC, who furthermore has in common with Rousseau the view that the last element in Vico's chain, the academies, has to be vehemently put in question.

The second part of the second discourse begins with the pithiness for which Rousseau is justly renowned, made possible by his gift for concrete images: "The first man who fenced in a piece of land and blatantly said, *This is mine,* and found people simple enough to believe it, became the true founder of bourgeois society. How many crimes, wars, murders, suffering, and terror would mankind have been spared if another man had dared to pull the stakes out or filled the ditch and had called out to the like-minded: 'Don't listen to this impostor. You are lost if you forget that the fruits belong to all and the earth to no one.'"[70] (*Le premier qui ayant enclos un terrain s'avisa de dire,* Ceci est à moi, *et trouva des gens assez simples pour le croire, fut le vrai fondateur de la société civile. Que de crimes, de guerres, de meurtres, que de misères et d'horreurs n'eût point épargnés au genre humain celui qui, arrachant les pieux ou comblant le fossé, eût crié à semblables: "Gardez-vous d'écouter cet imposteur; vous êtes perdus si vous oubliez que les fruits sont à tous, et que la terre n'est à personne!"*)

But Rousseau wants to start even before the stakes and the fences, that is, "at the very beginning." The first feeling of the first man concerns his "existence," his first care is directed to his survival. Hunger and "the desire . . . for the propagation of his kind" drive him about. "As soon as this need was satisfied, the two sexes did not recognize each other any longer, and even the child did not mean anything to its mother once it could do without her" (*Le besoin satisfait, les deux sexes ne se reconnaissaient plus, et l'enfant même n'était plus rien à la mère sitôt qu'il pouvait se passer d'elle*).[71] This representation of the prehistoric relation of the sexes, so devoid of paradisal features, astounds us. One would expect it more readily from Darwin than from Rousseau. Evidently Rousseau's fatal dealings with the orphanage, which began

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shortly before this text, reduced massively his possibilities for idealization, at least in this area.

In this primal time, physical exercise that makes one "flexible, skillful, and strong" is as vital as adaptation to climatic conditions.

Differences of the soil, of the climate, and the seasons determined differences in the way of life. Barren years, long and hard winters, hot summers that burn everything, demanded of men new abilities. Along the seas and the rivers they invented fishing rods and fishing hooks and became fishermen and fish-eaters. In the forests they made bows and arrows and became hunters and warriors. In the cold countries they covered themselves with furs of the animals they had killed. The thunderstorm, a volcano, or some lucky chance acquainted them with fire, a new resource against the hardship of winter; they learned to conserve this element, then to light it themselves, and finally to cook with it the meat that they previously had eaten raw.[72]

(*La différence des terrains, des climats, des saisons, put les forcer à en mettre dans leurs manières de vivre. Des années steriles, des hivers longs et rudes, des étés brûlants, qui consument tout, exigèrent d'eux une nouvelle industrie. Le long de la mer et des rivières, ils inventèrent la ligne et l'hameçon, et devinrent pêcheurs et ichthyophages. Dans les forêts, ils se firent des arcs et des flèches, et devinrent chasseurs et guerriers. Dans les pays froids, ils se couvrirent des peaux des bêtes qu'ils avaient tuées. Le tonnerre, un vulcan, ou quelque heureux hasard, leur fit connaître le feu, nouvelle ressource contre la rigueur de l'hiver: ils apprirent à conserver cet élément, puis à le reproduire, et enfin à en préparer les viandes qu'auparavant ils dévoraient crues.*)

It appears that "the love of well-being" (*l'amour du bien-être*) determines human affairs. To be able to count on the help of others, individual men band together into tribes (*troupeaux*).

It is easy to understand that this kind of interchange did not require a more differentiated language than that of crows or apes, who band together almost in the same way. Inarticulate cries, many gestures, and several imitative sounds had for a long time to suffice as a universally comprehensible language. . . . Soon, ceasing to sleep under the nearest tree or retire into caves, they invented several kinds of sharp and hard stone axes that served to cut wood, to dig the ground, and to make huts out of branches. They quickly got the idea of coating these

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with mud and earth. This was the epoch of a first revolution, which accomplished the settling down and the isolation of single families.[73]

(*Il est aisé de comprendre qu'un pareil commerce n'exigeait pas un langage beaucoup plus raffiné que celui des corneilles ou des singes qui s'attroupent à peu près de même. Des cris inarticulés, beaucoup de gestes, et quelques bruits imitatifs, durent composer pendant longtemps la langue universelle. . . . Bientôt, cessant de s'endormir sous le premier arbre, ou de se retirer dans des cavernes, on trouva quelques sortes de haches de pierres dures et tranchantes qui servirent à couper du bois, creuser la terre, et faire des huttes de branchages, qu'on s'avisa ensuite d'enduire d'argile et de boue. Ce fut là l'époque d'une première révolution qui forma l'établissement et la distinction des familles.*)

But with family life, which bound women more to the huts and to the nurturing of children and made men responsible for searching for food, developed a dangerous degree of leisure and comforts. The "first source of evil" (*la première source de maux*) started to emerge.

Young people of different sex inhabit adjacent huts. The temporary sexual intercourse required by nature soon enough draws in its wake another, more persistent intercourse as a result of the mutual cooperation. One gets accustomed to take into account various matters and to make comparisons; unawares one acquires concepts of merit and beauty, which awaken emotions of preference. As a result of seeing each other often, one cannot stop seeing each other. A tender and sweet feeling insinuates itself into the soul and at the slightest obstacle turns into impetuous furor: with love also awakens jealousy, discord triumphs, and the softest of all passions receives sacrifices of human blood. . . . It became a custom to assemble in front of the hut and around a large tree. Song and dance, the true offspring of love and of leisure, became an amusement for men and women assembling in their free time. Each began to regard the other and wanted to be regarded in turn. Public recognition became something valuable. The best dancer and the best singer, the most beautiful, the strongest, the most resourceful, the most eloquent were the most esteemed. But this was the first step to inequality and at the same time to vice. From these first preferences sprang on the one hand vanity and contempt, on the other hand shame and jealousy, and the ferments caused by this new yeast finally produced mixtures that proved disastrous for happiness and innocence. . . . Hence, the acts of revenge became terrible

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and human beings became bloodthirsty and cruel. This is precisely the stage reached by the largest part of the savage people known to us.[74]

(*De jeunes gens de différents sexes habitent des cabanes voisines; le commerce passager que demande la nature en amène bientôt un autre non moins doux et plus permanent par la fréquentation mutuelle. On s'accoutume à considérer différents objets et à faire des comparaisons; on acquiert insensiblement des idées de mérite et de beauté qui produisent des sentiments de préférence. A force de se voir, on ne peut plus se passer de se voir encore. Un sentiment tendre et doux s'insinue dans l'âme, et par la moindre opposition devient une fureur impétueuse. La jalousie s'éveille avec l'amour; la discorde triomphe, et la plus douce des passions reçoit des sacrifices de sang humain. . . . On s'accoutuma à s'assembler devant les cabanes ou autour d'un grand arbre: le chant et la danse, vrais enfants de l'amour et du loisir, devinrent l'amusement ou plutôt l'occupation des hommes et des femmes oisifs et attroupés. Chacun commença à regarder les autres et à vouloir être regardé soi-même, et l'estime publique eut un prix. Celui qui chantait ou dansait le mieux, le plus beau, le plus fort, le plus adroit, ou le plus éloquent, devint le plus considéré; et ce fut là le premier pas vers l'inégalité, et vers le vice en même temps. De ces premières préférences naquirent d'un côté la vanité et le mépris, de l'autre la honte et l'envie; et la fermentation causée par ces nouveaux levains produisit enfin des composés funestes au bonheur et à l'innocence. . . . C'est ainsi que les vengeances devinrent terribles, et les hommes sanguinaires et cruels. Voilà précisement le degré où étaient parvenues le plupart des peuples sauvages qui nous sont connus.*)

For Rousseau the modest division of labor in the family and the openly unequal chances in dancing and in courtship were enough to reveal the first signs of evil. Only the introduction or allowing of private property was missing to bring slavery and misery into full swing. Here, in conclusion, is his colorful description of this fateful process:

As long as men were satisfied with their hut out in the country, as long as they limited themselves to sewing their clothes out of animal skins with thorns and bone fragments, to adorning themselves with feathers and sea shells, to painting their bodies with different pigments, to improving and decorating their bows and arrows, to building with sharp stones some fishing boats, or to making some simple musical instruments; in short, as long as they produced objects that did not need the collaboration of many hands, they lived as free, healthy, decent,

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and happy as they could be by nature, and enjoyed together the pleasures of independent interchanges. But from the moment when man needed the help of others, when he realized that it was useful for one single person to have on hand supplies for two, then equality disappeared. Private property was introduced, labor became necessary, and the vast forest turned into open fields that had to be watered by human sweat. Slavery and misery sprang up on top of the fields and grew along with the harvests.[75]

(*Tant que les hommes se contentèrent de leurs cabanes rustiques, tant qui'ils se bornèrent à coudre leurs habits de peaux avec des épines ou des arêtes, à se parer de plumes et de coquillages, à se peindre le corps de diverses couleurs, à perfectionner ou embellir leurs arcs et leurs flèches, à tailler avec des pierres tranchantes quelques canots de pêcheurs ou quelques grossiers instruments de musique; en un mot, tant qu'ils ne s'appliquèrent qu'à des ouvrages qu'un seul pouvait faire, et qu'à des arts qui n'avaient pas besoin du concours de plusieurs mains, ils vécurent libres, sains, bons et heureux autant qu'ils pouvaient l'être par leur nature et continuèrent à jouir entre eux les douceurs d'un commerce indépendant. Mais, dès l'instant qu'un homme eut besoin du secours d'un autre, dès qu'on s'aperçut qu'il était utile à un seul d'avoir des provisions pour deux, l'égalité disparut, la propriété s'introduisit, le travail devint nécessaire; et les vastes forêts se changèrent en des campagnes rientes qu'il fallut arroser de la sueur des hommes, et dans lesquelles on vit bientôt l'esclavage et la misère germer et croître avec les moissons.*)

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PART III The Fisherman's Hut and the Huts of the *Crannoges*

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From the Fisherman's Hut to the Palace: LC's Architectural Analogy to Jean-Jacques Rousseau

Our next question is, can we take the thesis that LC was a Rousseauist, by birth or by cultivation, as being literally true? The relevant answer is to be found in *Une maison—un palais.* However, the name of Jean-Jacques does not appear here. LC's guiding rule seems to have been first to treat the matter, then to cite the name. (As we have seen, Rousseau is expressly mentioned two years later, in 1930, in *Précisions.*)

Already the book's title presents a contradiction. The two drawings on its cover (figure 120) contrast a fisherman's hut, sketched by LC, with a bird's-eye view of the League of Nations project. However, the title is not *The Hut—the Palace* but *The House—the Palace.* Yet we opt automatically for what is shown in the drawing, because the contrast of hut and palace is ingrained in the memory of many generations of students down to our century. This contrast is the short form of the famous battle cry, "Peace to the huts—war to the palaces!" This slogan, formulated by Georg Büchner in 1834, actually goes back to a French revolutionary battle cry attributed to Sébastien Nicolas Chamfort (1789). Chamfort's formulation was more aggressive than that of Büchner, because the goal of the attack was named first: *Guerre aux châteaux! Paix aux chaumières!* ("War to the palaces! Peace to the huts!") It is not inapt to suppose that the contrasting of hut and palace was promoted by Rousseau's work, since he was, in fact, one of the most important pioneers of the French Revolution. Rousseau specialists, however, inform us that only one call to action is to be found in his work (in the first discourse), which certainly takes aim at the palace but does not bring into play its contrast to the hut: *Brisez ces marbres!* ("Smash these marble buildings!")

LC aims clearly at the contrast in this slogan, although he immediately weakens its impact by the seemingly dull choice of the word *maison.* The reason for this is surely the fact that he does not hope to erect a palace of the usual sort that provokes envy and revenge, but a completely different new one, an alternative palace in Geneva that is to bring peace to all nations.

The diffuse formulation of the book's title is matched by a correspondingly diffuse table of contents. With off-putting reserve we are merely

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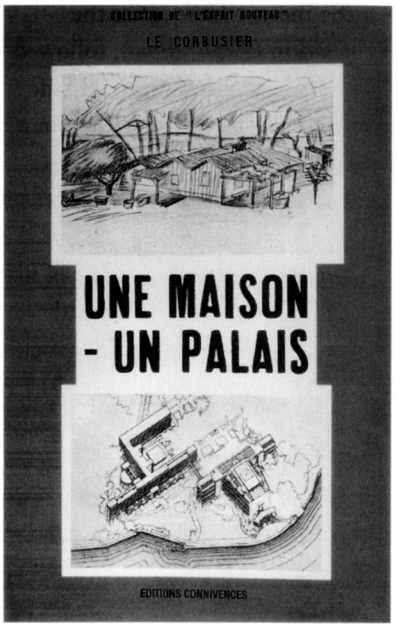
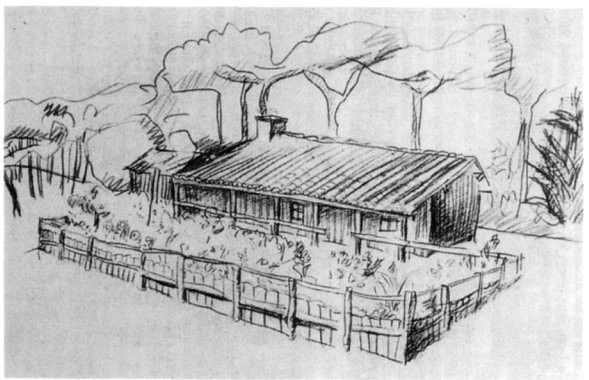
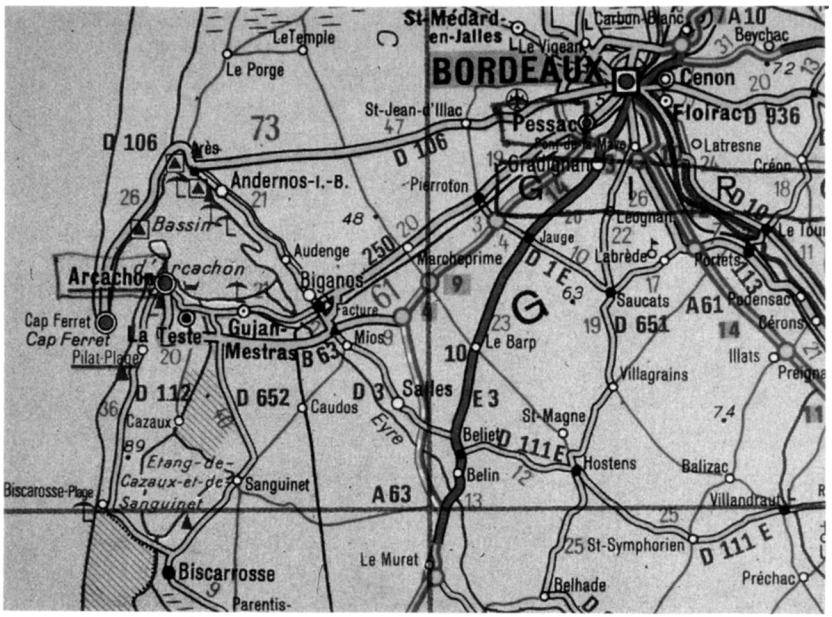


120–122
If one wants to build a palace one should not forget the hut. LC's discovery of the fishermen's huts (120, 121) in the region of Landes near Bordeaux (122).





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informed that the first part up to page 85 is the thesis (*Thèse*), that the second part up to page 171 provides the explanation (*Explications*), followed by the appendix that contains documents about the intrigues played by the competition's jury in Geneva, among them the *requête* by LC and Jeanneret. In total contrast to these vapid announcements, the book proves an exciting accomplishment, achieved as it were at the first try; that is, it is much richer and contains more astonishing points of departure than the author can indicate in the title or in the chapter headings. Yet viewed in terms of his biography, LC's *Une maison—un palais* is anything but a first try. Already in 1923 LC had composed his first book *Vers une architecture* out of his articles in *L'Esprit Nouveau,* then in quick succession published the volumes *Urbanisme* and *L'art décoratif d'aujourd'hui.* Especially *Vers une architecture* was masterfully composed and titled, held together by the guiding motifs forming the series of theses that first appear in the introduction and are repeated as a refrain in each chapter in subordinate groups, to be made concrete and explicated. What had happened since? Had his theses already become routine; had new horizons come into play?

While the first part of *Une maison—un palais* (its interlace of image and word copying LC's slide lectures given at the ETH in Zurich, then in Madrid and Barcelona) takes up themes that could have occurred also in his preceding books, the optics and the commentary are changed from page 38 on: *Voici la maison primitive* (Here now the primitive house). Twice he announces *la maison à travers les âges* (the house through the centuries; pp. 36, 38), but anyone expecting a piece of conventional art history in the sense of a succession of styles is disappointed. LC insists on the primitive; this is what he is seeking and this he evidently also needs. However, he immediately takes up the concept's double meaning: an archaeological and even, if possible, prehistoric primitivity to be distinguished from facets of primitivity still alive and at work today, the subject of anthropological and sociological studies as it appears in marginal groups or subcultures.

LC surprises us first with the greatest, seemingly most chaotic collection of examples of the primitive he has ever published. On five pages of illustrations (pp. 39, 41, 43, 45, 47) he shows seventeen examples, all drawn by him with the exception of one drawn by Amédée Ozenfant, plus one photograph and two engravings from an archaeological book. They are followed

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by two larger drawings, sketched by him on site, that relate to two types of fisherman's huts (pp. 49, 51; see my figures 120, 121). The first of these is already familiar to LC's reader since it occupies the place of honor on the book's cover. We first concentrate on the fisherman's huts, because we believe we recognize in them *a direct analogy* to Rousseau's body of thought.

How could or should a primitive dwelling, produced at the outer fringes of progressive society, look if it is to be viewed as an analogy to Rousseau's theory of primeval beginnings? Let us try not to ignore the commandment of harmony that was such a deep concern for Jean-Jacques, setting against the "big no" also a determined "big yes," always relating it to the building of shelter, to the production of artifacts as manual labor. Thus, we would expect the following:

- No private ownership of the land.
- No division of labor.
- No inequality; for the architectural domain this means postulating the creation of building types accessible to all.
- The simplest materials and the simplest methods of construction as an absolute precondition.
- But this is not enough; an equivalence must be shown with all that Rousseau called the original *transparance des coeurs* (transparency of the heart) that has to be rediscovered.[1] How can an artifact mirror or represent such a transparency? Surely by making evident the principles of its construction; or put differently, by laying open the functions that constitute a hut or a house.
- Finally and definitively, this house has to be taken as the point of departure, as the cardinal point *from which* and *against which* later constructions *can be measured,* not the other way around.

How is LC's commentary on the two fisherman's huts formulated and where did he find them? In 1924 the industrialist Henry Frugès commissioned LC and Pierre Jeanneret to plan a garden city for the village of Pessac, at that time lying outside Bordeaux on the road to Arcachon. During the designing and building phases of the Quartiers Modernes Frugès, LC discovered the solitude and timelessness of Landes, a region of dunes and pine groves behind the Atlantic coast that extends from the basin of Arcachon to the south, a region no less solitary or timeless than the Alpine region.

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Thus, the man who is about to transpose the newest principles of industry into the building of housing (use of cement guns on the building site, rationalization of the division of labor in the sense of Taylorism) discovers with incomparable fascination, right "before the noisy gates of mechanized life," the existence of the "eternal fact of architecture" (*Aux portes bourdonnantes de la vie machiniste, l'éternel fait architectural*). This contrast, brought about by the enormous upheaval of the First World War, did not extinguish the eternal fact of architecture; on the contrary, this continued to unfold unpretentiously in the total simplicity of normal conditions (*il se développe encore humblement dans toute la simplicité des conditions normales*).[2]

This simplicity had been preserved "because the railways had stopped at the fringes of the Landes region covered with pine forests [figure 122]. This promontory is cut off from the world because the railway does not go through it; one of its sides is exposed to the stormy and eroding sea: the winds tear everything away, the dunes are nothing but a desert. The other side is caressed by mild tides which flow in through an inlet into an inland bay. Isolation, detachment from the world."[3] (*Car le chemin de fer s'est arrêté au bord des sables de la lande que couvre la pinède. Cette langue de terre est isolée du monde parce que le chemin de fer s'est arrêté; l'un de ses flancs est battu par l'océan irascible et appauvrissant: les vents arrachent tout, les dunes ne sont qu'un désert. L'autre flanc est caressé par la douce marée qui par un goulet s'infiltre dans un bassin intérieur. Isolement, séparation d'avec le monde.*)

What can hermits accomplish here? First of all, they cannot appropriate the soil. Why? It "belongs to a single large land proprietor; here fishermen are at best tolerated guests. They cannot build stone dwellings on a soil that does not belong to them."[4] (*Le terrain . . . appartenant à un seul grand propriétaire, les pêcheurs n'y sont que des hôtes tolérés. Ils ne peuvent élever des maisons de pierre fondées sur un sol qui n'est pas à eux.*)

But exactly this kind of building, without getting anything for one's troubles, without a chance for owning land, proves to be of value. Because "they make quarters for themselves, a shelter and nothing else, and a simple and decent one at that. They realize a *pure* program, which is precisely unencumbered by the pretensions of history, of culture, of the passing trends of fashion: they build a shelter, a hut, from one day to the next, with the humblest materials they find in their next surroundings. They do this with their

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hands and without great professional expertise . . . economical even with their smallest efforts, sensitive to the promptings of invention, desirous to make the most out of the little they have."[5] (*Ils se font un gîte, un abri, rien de plus, tout simplement, tout bonnement. Ils réalisent un programme pur qui n'est point encombré des prétentions à l'histoire, à la culture, au goût du jour: ils bâtissent un gîte, un abri, au jour le jour, avec les matériaux pauvres trouvés alentour. Ils font cela de leur mains et sans grande connaissance professionelle . . . économes du moindre effort, sensible à toute ingéniosité, désireux d'atteindre à un maximum par un minimum.*)

We note: those who have to build like the fishermen of Arcachon and have no chance for private property fulfill almost spontaneously the rest of the preconditions that we set down for a credible analogy to Rousseau's theory of first origins. No property, no division of labor, no cultural pretensions—the program stays pure, makes do with the simplest materials and ways of construction, and creates types instead of provoking distinctions. All in all, "an organism unfolds, expresses itself, represents itself in an order. Nothing is rejected. Everything is put to use. No surplus, no unnecessary repetition, but a total efficacy."[6] (*Un organisme se déploie, s'exprime, se présente dans l'ordre. Rien n'est à rejeter. Tout sert. Pas une surcharge, une redite, mais une efficacité totale.*) And since this first hut represents itself so clearly by itself, one will hardly deny that it has a certain closeness to Rousseau's concept of *transparence,* and one allows to the fisherman building his hut the status of a creator and an artistic vein. "This fisherman, why shouldn't he be an artist? The savage is one anyhow."[7] (*Ce pêcheur, pourquoi ne serait-il pas poète? Le sauvage l'est bien.*)

To the original equality (*égalité*) belongs not only the development of building types for all. LC believes he has found in the fishermen's villages the use of a binding measuring standard that makes possible harmonious proportions: "These houses, a hundred or even five hundred of them, hidden in the folds of the pine groves or grouped in hamlets along the shore, these houses have one standard of measurement in common, the scale of the human body. Everything is subjected to this scale; one measures by the step, by the shoulders, by the head."[8] (*Ces maisons, qui sont cent ou cinque cents, isolées dans les replis de la pinède ou groupées en hameaux sur la plage, ces maisons ont une mesure commune: l'échelle humaine. Tout est à l'échelle; on mesure le pas, l'épaule, la tête.*)

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Now LC has cleared the path for the great conclusion that gives the book its title: "One day, after one suddenly comprehended them [the huts], one cried out: But these houses are actually palaces!" (*Un beau jour, après les avoir tout à coup comprises, on s'est écrié: Mais ces maisons sont des palais!*) The fisherman's hut itself has the quality of a palace, for it has dignity (*dignité*), and this dignity in its turn "emanates from appropriate behavior" (*émane d'une tenue décente*).[9]

Just as Rousseau maintains that the first human beings were *good,* LC maintains now that the first hut has *dignity* and therefore is the *equal* of a palace. This is the decisive *anchoring* of LC's argument, which enables him too to measure the world from its primeval beginnings rather than from the present. Once again he reiterates his argument, this time relating it to today's situation: "And the standardized house is going to catch up with the palace: it will convince by the dignity of its look. Consequently, the house can certainly become a palace at any time. . . . We too will be able to make our house a palace if we learn to realize the new conditions in a harmonious organization."[10] (*Et la maison-type atteindra au palais: elle frappera par la dignité de son aspect. Ainsi la maison peut devenir un palais, toujours. . . . Nous pouvons, nous aussi, si nous savons réaliser l'harmonieuse organisation des données nouvelles, faire de nos maisons, des palais.*)

The only snag left in our argument is that up to the end LC continues to speak in highest terms of the fisherman's hut, yet never calls it a hut but always a *maison* (house). Are there any reasons leading him to accept this handicap for the powerful delivery of his argument and for his book? The struggle for acceptance of the new building material, reinforced concrete, to which he had devoted himself for one and a half decades, taught him that in conservative circles it counted as a decisive disadvantage that concrete was not only a simple but also a lowly material. At the moment when LC achieves Rousseau's transvaluation, that is, when he *gives to the simplest building the highest dignity,* he cannot afford to let the pejorative meaning of the words for hut (*chaumière, hutte, gîte, abri*) jeopardize his case. Hence he has to exclude the inferior connotations of those words and admits only *maison* and *boîte,* knowing full well that at least the geometric dignity of the box is beyond question, even if other words should not guarantee the respect due to the hut.

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That the simplest may deserve the greatest respect, that the external preciousness of building material should never decide architectural rank—this is the solid mooring of LC's work, and at the same time it is an anchor in Rousseau's body of thought. Without doubt, this fact has affected the profile of LC's fame to a considerable degree, and is perhaps one of the reasons that the interest in his work has not diminished after his death, something that might conceivably have happened. His loyalty to rudimentary beginnings as distinguished by their simplicity brought him a following in the Third World. He seemed to point a way out of the Western attribution of defects to the underdeveloped. Seen thus, the commission of Chandigarh was no accident. Thereby, LC becomes definitively the architect of the poor: of the Salvation Army, of a monastic order, of the so-called developing nations of North Africa, South America, and the Indian subcontinent.

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In *Une maison—un palais,* the discovery of the fishermen's huts in the Landes region constitutes the second part of a grand invocation of primeval beginnings. Its first part, with LC's seventeen visual evocations of the early and the primitive, will also have to occupy us, although at first it appears a confused mixture of things that occasionally requires the dedication of a detective. But before we fully turn to this theme, a last reference to the League of Nations project is necessary, because, at least from our ground-related perspective on the Genevan site on the shore of the *petit lac,* a very important question remained unanswered: where does the *promenade architecturale* (the "architectural promenade," as the wandering through or the being-on-the-way with architecture) take its beginning or end in the Perle-du-Lac park?[11]

About the key concept *promenade architecturale* we have to mention that it too recalls Rousseau, and in a direct geographical connection with LC's place of origin at that. His last biographical notes, begun two years before his death, Rousseau titles *Rêveries du promeneur solitaire* (Reveries of a Solitary Wanderer). The most famous of these, the Fifth Promenade, was and remains for a Neuchâtelois student completely concrete and easy to visualize, because it takes place right before his own windows in his own landscape: down at the foot of the Jura, at the Lake of Bienne on St. Peter's Island, where Rousseau sought refuge from September 6 to October 25, 1765, after the populace of Val de Travers threw stones at his house in the village of Môtiers.[12]

The Fifth Promenade begins as follows: "Of all places I have stayed (and I have lived in some charming places) none has made me as truly happy and caused such poignant homesickness in me as St. Peter's Island in the middle of the Lake of Bienne. This little island, which in Neuchâtel is called Île de la Motte [a lump of earth], is little known even in Switzerland." (*De toutes les habitations où j'ai demeuré (et j'en ai eu de charmantes), aucune ne m'a rendu si véritablement heureux et ne m'a laissé de si tendres regrets qu l'île de Saint-Pierre, au milieu du lac de Bienne. Cette petite île, qu'on appele à Neuchâtel l'île de la Motte, est bien peu connu, même en Suisse.*)

After this small apostrophe regarding the Rousseau analogy in LC's work, let us now return to LC and his Geneva project. I am not sure whether

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he would have approved of the chapter title "The President's Pavilion as the Crowning of the League of Nations Concept." Not that he would have rejected the hierarchic scale (implicit in the concept of a crowning); on the contrary. But as often becomes apparent, for him the building itself has no main and no subordinate facades, all its sides are declared to be equally important. This is true also of the sixth side of the cube that now has become visible through its being raised on pilotis.

Of the total of eighteen sheets of LC's drawings for the League of Nations competition (which are owned by the Institute of History and Theory of Architecture of the ETH in Zurich), sheet number 14 (figure 123) is the most informative. First, because it shows the whole in a bird's-eye view from the lake in a telling relief in an axonometric rendering; and second, because LC used the left third of the sheet to clarify four chosen aspects of it in a drawing by his own hand. What he chose are evidently those passages and sequences of the architectural promenade that he considered its key points. A diplomat arriving there by car would come across them in the following sequence: the main drive, the interior of the large Assembly Hall, the view from the roofs with their vast vista of the lake, and finally, the way the great hall extends toward the lake and the water surface as the "front of the palace." Among numerous surprises of the total concept, this fourth aspect presents a further one. The structure forced into prominence is a single huge pilotis monumentalized by a sculpture on top and a further stranger structure in front of it: a pavilion shaped like a crescent moon opening toward the lake like a segment of an imaginary ring and raised on a conspicuously high base.

This cadence of unexpected buildings, as figure 124 shows especially clearly, is connected or seemingly welded to the main tract through an axial corridor as high as a bridge. LC deems this drawing important enough to give it a prominent place at the top left of sheet 14. Below it are shown the hall's interior and the drive, and finally at the bottom what is on the building's top, namely, the scenery formed by the roofs. The caption of the Pavilion sketch reads, *Le Front du Palais est au Coeur du Site* (The front of the League of Nations Palace is at the heart of the site). Accordingly, for LC the "center," the "heart," does not lie at the top of the park's hill surrounded by enormous trees, but close to the shore, on the spot where it forms a generously curved

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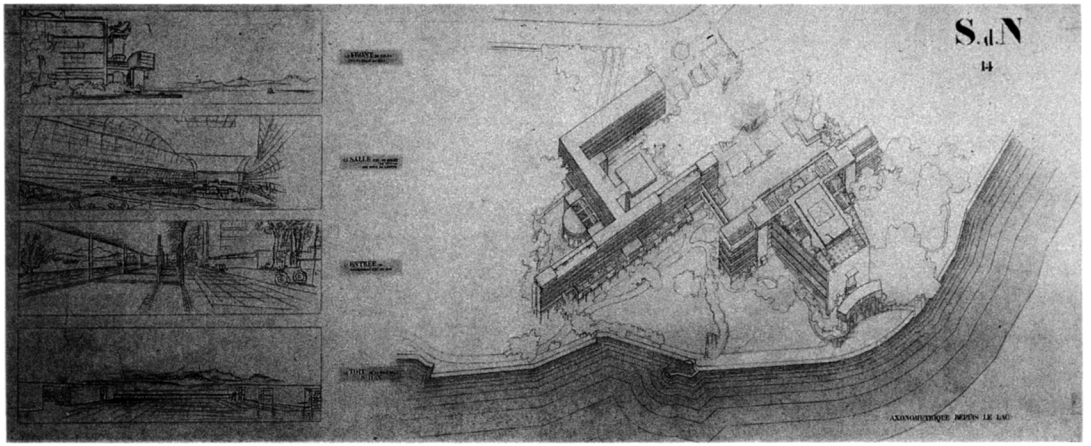

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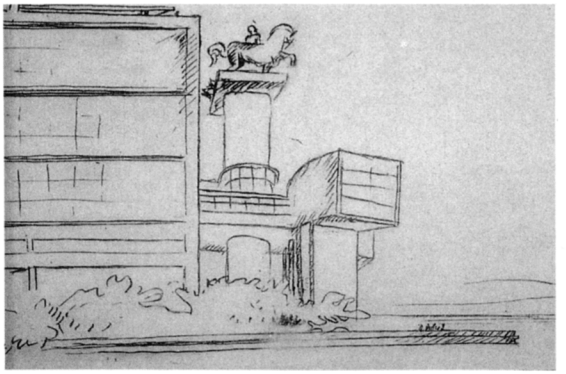
The League of Nations competition: sheet 14 from LC's project, with a total view from above (right) and four of the most important aspects, drawn by LC (left).



124
Is the President's Pavilion the crowning of the whole project? (Detail of figure 123.)

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landing point. On sheet 4 LC justifies the buildings' advancing toward the water with an explanatory sentence: "In order to get full use of the site (the view, the lake, Mont Blanc), we have approached the shore, we have avoided the highways and the dead spaces."[13] (*Pour bénéficier du site (la vue, le lac, le Mont Blanc) on s'est approché de la rive. On a fui les routes et les espaces morts.*) It becomes clear that for him the concept of site is not simply the building terrain or grounds. "The view, the lake, the mountains" are also a part of it; that is why topography and location would be more appropriate designations. LC responds to the whole environment, and he includes the visible distance in addition to the immediate surroundings, the water surface in addition to the solid ground.

Before we examine this process of architectural approximation with regard to the "heart of the site," we must ask what practical goal or functions the President's Pavilion and the connecting bridge are supposed to house. The floor plans (figure 125) make clear that an axial access from the Grande Salle des Assemblées is planned that leads along the bridge to the offices of the President's staff. The President can thus leave the Great Hall through a door located in the central axis behind the speaker's platform, reach the giant pilotis via the glass passerelle, walk through the pilotis halfway up and, moving still on the same level, reach his own office (room 43) that faces the lake with two large windows. On the left and right of the President's offices are the offices of the General Secretary (room 44) and working areas for the rest of the staff (rooms 45 and 46).

The separation of the work area for the President and his staff from the other large office tracts is understandable. Their isolation in a special pavilion makes sense, even if the building's forms and the interweaving of these forms continue to astonish us. Or *is* everything explained by the argument that the President has to be able to reach his own sanctuary quickly and easily, and therefore that everything has to be accessible on the same level?

For once LC gives a rather short commentary: "For the hall . . . would otherwise have stretched to the lake up to the shore's point. Here we have an elegant task: the pavilion of the President of the General Assembly, the general headquarters of their annual meetings, is monumentalized by the height of its pilotis, which consist of poles reinforced by concrete but faced with polished granite—an academician would call them columns. These columns

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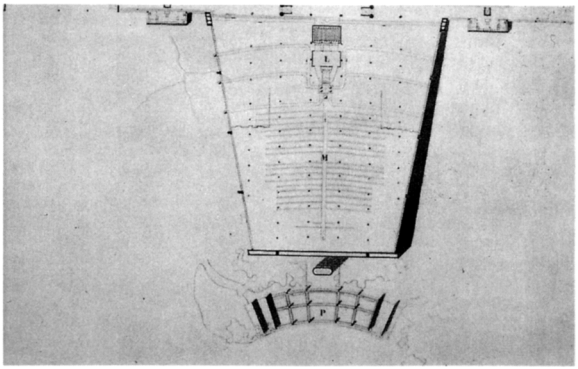

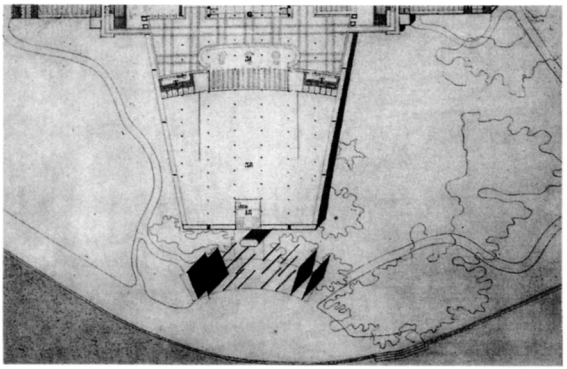

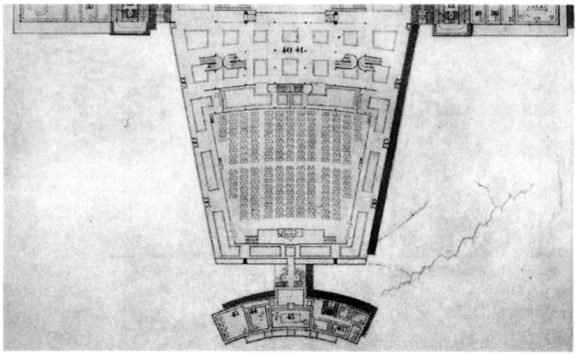

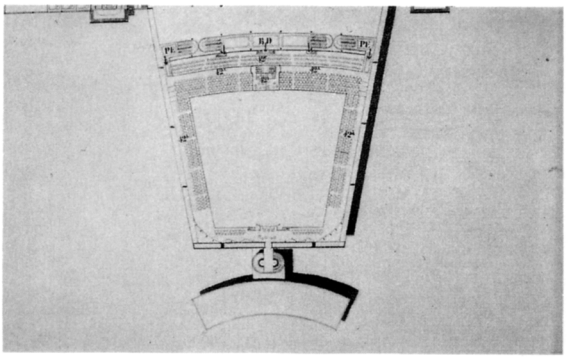

125
"In the heart of the building site": the Grande Salle des Assemblées (great assembly hall) and the President's Pavilion, floor plans of the four levels.

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dip their base in a small harbor, and steps descend down to the water. One can reach the President by water (the steamboats of Geneva are enchanting), or by car, by driving up to and under the pavilion, where one finds a lift."[14] (*Car la salle . . . s'était avancée au-devant du lac, sur le cap. Là, une intention précieuse: le Pavillon du Président de l'Assemblée, Grand Quartier Général des ces assises annuelles, se présente en haut de ses pilotis qui sont des poteaux de ciment armé, revêtus de granit poli,—des colonnes, dirait un académicien. Ces colonnes baignent dans un petit port et des marches descendent jusqu'à l'eau. On peut venir chez le Président par eau (les bâteaux-mouches de Genève sont délicieux); ou en voiture, jusque dessous le pavillon, où l'on trouve un ascenseur.*)

Naturally, LC is aware that the composition of the *coeur du site* at the promontory presents a special challenge. It is the alpha and omega of his whole undertaking for the League of Nations, at least in the sense that it can be read as the beginning *or* end of the *promenade architecturale:* as the beginning, for the visitor arriving by water (on the "enchanting steamboat"), and as the end, for the pedestrian who walks up from the direction of Lausanne. LC also evidently knows that the roofs present a scenery that is fascinating enough (figure 126) but cannot be composed as actively here as in the case of the Villa Savoye. Sunbathing on the roof is a private affair and cannot be transplanted into the official political and diplomatic atmosphere of the League of Nations. If there is a chance to create a twin structure to the Villa Savoye, it lies down on the lawn at the site's point.

Did LC impose on himself special requirements? He thinks that he has solved the technical problems and has created clear building types; what remained was the task of "finding beauty, which incites one to find the appropriate dimension to be shared by all these different building types in order to bring them into harmony with each other and with the surroundings." This common factor he describes as follows: "We have realized that in the site is inscribed the horizontal: a conclusion of a poetic order."[15] (. . . *de faire beau incite à trouver la commune mesure entre ces types différents pour les mettre en harmonie entre eux et avec le milieu ambiant. Ces facteurs communs: Nous avons reconnu que le site impliquait l'horizontale: conclusion d'ordre lyrique.*) To visualize the site conditions implying the priority of the horizontal, LC shows the different view seen from the lake and writes above the drawing *La Chaîne du Jura* ("the Jura range"; figure 127). The added commentary celebrates the successful transposition of the buildings' profile into a "unique,

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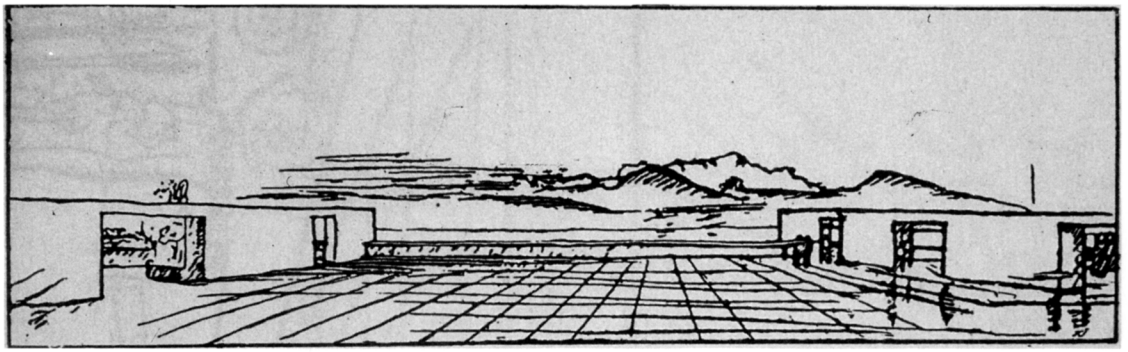

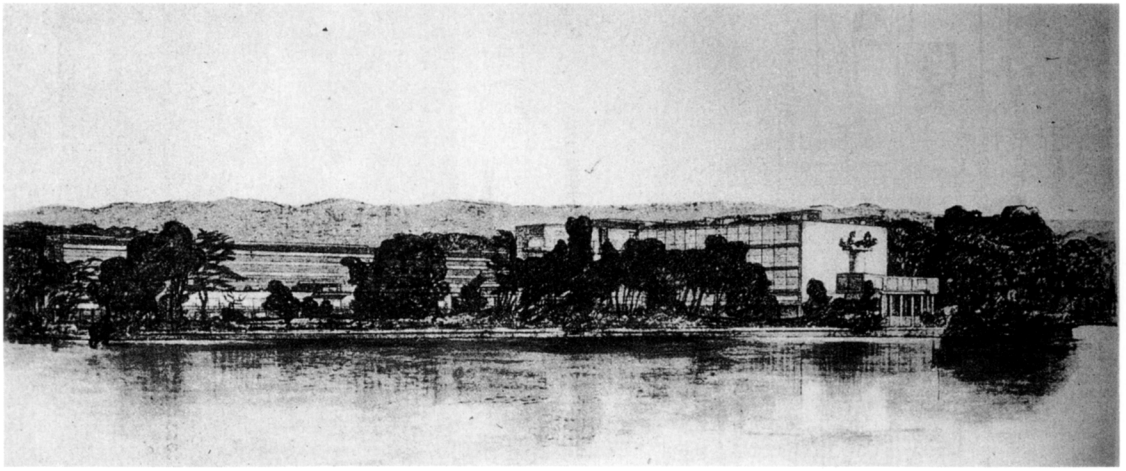

126, 127
League of Nations: the roof terrace seen against the south; overall view against the north, strongly interrelated with the Jura chain.

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smooth, and pure crowning horizontal" (*un couronnement horizontal unique, lisse et pur*),[16] which does not sound too modest, but we must remember that LC is right in the midst of the struggle of the competition.

That is, LC chooses not the interesting and renowned profile to the south of the Geneva basin, but the boring and less famous profile to the north. He takes not the Alps but the Jura as his model. This can only intensify the expressive aspects of the formal features down at the promontory. Nevertheless, doesn't LC thus disregard his "Roman lesson" (*la leçon de Rome*)? As generally known, it established that "great primary forms" underlie all notable architecture, as for instance the architecture of Rome. Do cylinder, pyramid, cube, parallelepiped, and sphere, which in *Vers une architecture* he had inscribed above his sketch of Rome as archetypes or primary volumetric figures (figure 128), play their ascribed dominant role at all at the cape of the League of Nations?

The side view drawn in figure 124 seems to confirm that these primary volumetric figures are in a crunch, to say the least. If one adds the bird's-eye view (figure 123) and the ground plans (figure 125), one can certainly ascertain, even though in a somewhat pedantic way, that all five primary geometric figures are employed, if only in very veiled form. The cylinder is proclaimed by the great pilotis clearly enough, but only to draw attention to the fact that the whole large building complex is raised on slender cylinders. And if this message is central, why is it relativized immediately in the side view by the tight clasp of the connecting bridge and the glass corridor around it staged as a lookout tower? The pyramid is alluded to by two of its four sloping sides in the angled form of the assembly hall wing, tapering off slightly as it turns toward the lake, while the end of that wing, seen from the lake, appears from afar rather like the side of a cube (figure 127). White and immaculate, it looks like a large cinema screen on which unrolls the newest medium of those years, film. The two remaining primary forms, parallelepiped and sphere, also appear in the President's Pavilion, a parallelepiped on stilts that at its end makes a wide curve toward the water surface to the point of becoming the segment of a ring. In other words, the same architect who has so frequently invoked the right angle and asserted its dignity and glory decides here in favor of curving the horizontal parallelepiped. Thus he goes over to the family of spherical forms. This does not exactly contradict the *leçon de Rome,* yet it produces a surprise.

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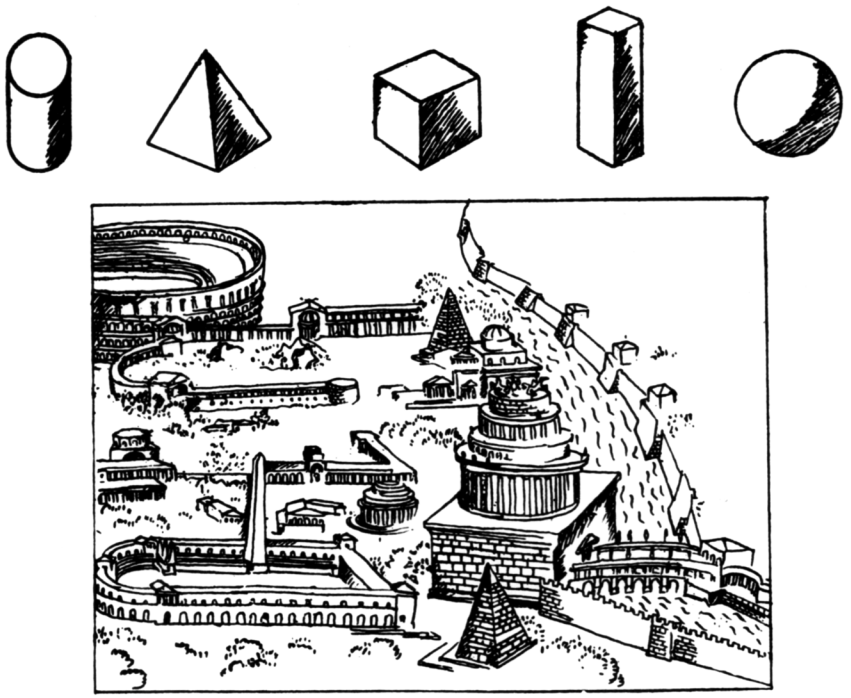

128
LC, *la leçon de Rome:* is it getting lost?

These illustrations of the primary figures are acceptable, but a kind of irritation lingers, especially with respect to the side view (figure 124). Hasn't the sequence of the primary figures, in our scenario, been reversed? Wouldn't it be more convincing to take the movie screen front as the first point of departure and let the President's Pavilion follow and the great pilotis come last? If simplifications are allowed, we might say that, especially if the irritating bridge with the observation corridor and the thin slabs adjoining the stilts' flanks are first disregarded, it becomes clear why sequence A is "wrong" and the reverse sequence B more convincing (figure 129). The President's Pavilion, in its mutation from a parallelepiped into a horseshoe (or curved magnet or segment of a ring) would be seen as a reassuring companion structure for the great pilotis. Its concave indentation is the protective rim or pad of the huge cylinder. And the cylinder itself, following the logic of the descent from the complex to the simple, why shouldn't it stand at the

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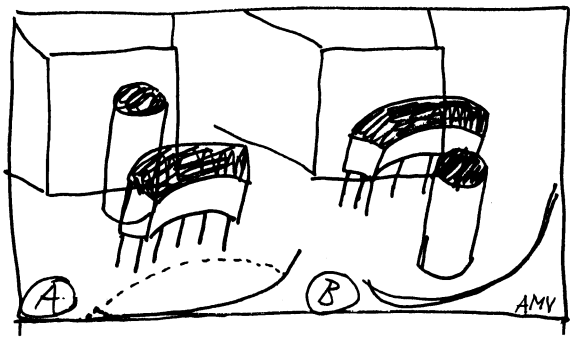

129
The President's Pavilion: does it turn the composition around?

point of the promontory and proclaim far across the water surface that the (literally fundamental) message of LC's whole project is concerned with the pilotis? With the pilotis that occur as slender unadorned cylinders in endless repetitions all over the terrain, and make it possible for the herd of sheep and their herdsman Jean-Jacques to wander freely over the intact grounds of Perle-du-Lac?

What could have prevented LC from choosing this clear but also too simple, all too obvious solution? All too obvious solutions are those whose order or sequence can be read by the eyes too quickly. Elisabeth Blum is also concerned with the *promenade architecturale,* but draws her observations from a different, earlier example, from the Villa La Roche-Jeanneret, Paris, 1923. She concludes that the effect of alienation LC is seeking there corresponds to *the principle of slowed-down perception.*[17] My impression is that LC strives for a slowed perception also in the composition of the promontory in Geneva. Blum asserts: "The task of the work of art is to move people . . . to produce irritating jolts in the act of perception and thus to direct the observer's awareness *through rule violation to the rules that are present.*"[18] I see a similar violation of rules in LC's exchanging the places of cylinder and pavilion; thus the perceptual expectation of the descending logical order from the complex to the primitive is violated.

However, not only rules but violations of rules are enacted in the name of a higher intention, whether conscious or unconscious. This higher intention of LC I find in his need finally to realize fully the complete clarification of the project of raising the building above the ground, something he

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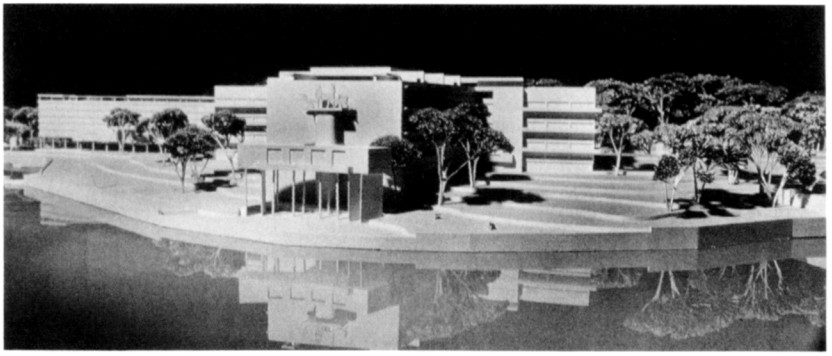
was prevented from doing in his other projects in the same years, in the two houses at Weissenhof, the villa at Carthage, and the Villa Savoye. Presidential buildings need staircases and garages. These have to be fitted into "the airy grove of pilotis," and thus the project of raising them above the ground is relativized. Because the President's Pavilion is neither a residential building nor an isolated individual structure but is connected with a whole conglomerate of buildings, the problem of the staircases can be delegated to the great cylinder with its elevator and to the connecting bridge that provides access to the Grande Salle. Thereby embarrassing attempts at camouflage become superfluous, such as the stairwell at the Villa Savoye that was painted green to make it look like a lawn.

An additional impulse seems to have been involved in seeing the President's Pavilion as a unique opportunity: in it LC could celebrate those tall pilotis he had already seen and admired in the famous illustration in Frédéric Troyon's book. We will come back to this theme in a later chapter.

That the very tall pilotis is one of the main motifs of the promontory can be seen not only in figures 123–125 but especially well in the Zaborowsky model (figure 130) that was made in 1987 with professional assistance. Nevertheless, a mistake happened to be overlooked by the model makers: the tall pilotis should not be grouped in pairs but in groups of three, as is clearly evident in the axonometric rendering (figure 123) and above all in the floor plans (figure 125). A dozen pilotis (four groups of three) are flanked by two



130
League of Nations, waterfront: the model by Zaborowsky, 1987.

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thin panels on each side, and, as noted, this is a novel feature. The model shows that such panels at the flanks are necessary not on technical grounds but for formal reasons, a matter that we will address briefly.

To push the pavilion into the foremost position amounts to a rule violation and has a number of consequences. One of the more fortunate ones is that the great cylinder, set back as it is, can display its crowning sculptural features immediately in front of the "pure" screen at the end of the Grande Salle building. The result is that the cylinder can thus cast expressive shadows on the screen, an advantage that would have been lost if it had been placed in an isolated position on the promontory.

While in the middle of designing the building project, LC is trying out two different versions of the sculptural group on top of the cylinder. On sheets 12, 13, and 14 the first version is shown three times: a horse and a striding man (figures 131–133); the axonometric rendering on the right of sheet 14 shows the sculptural pedestal by itself (figure 123). On sheet 17 a second version appears, a group of four figures: a lion, a horse, a man, and an eagle (figure 134). A strongly modeled group, it casts strikingly distorted shadows and shows great freedom with respect to scale: the eagle is almost as wide and high as the horse. These sketches are nothing more than preparatory steps for the strongly articulated group. But does LC experience his own architecture as so strongly virile that it does not occur to him to include a female figure at this crucial point of his total concept?

A second fortunate consequence of the rule violation is seen most clearly in sheet 14: the free space between the curve of the Pavilion and the curve of the shoreline has the form of a *lens,* and this slightly asymmetrical lens is accentuated by the garden wall and thus drawn to our attention. The Pavilion's curve at the same time impels the gaze to read this lens as part of a circle extending far into the lake. A mutual overlapping of land zone and water zone seems also to be part of the action. This is confirmed by the bird's-eye view that concludes the treatment of the competition design in *Une maison—un palais* (figure 135). This photomontage by LC and Pierre Jeanneret is supposed to clarify how the League of Nations project fits into the landscape of the park at Perle-du-Lac.[19] From a comparison with the original photograph (figure 136), it becomes apparent that LC supplements the existing harbor embankment that projects far into the lake with a second,

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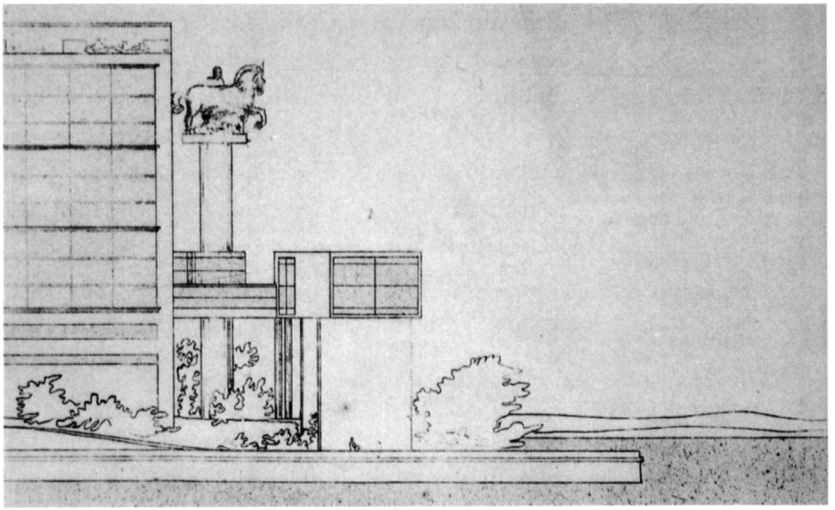
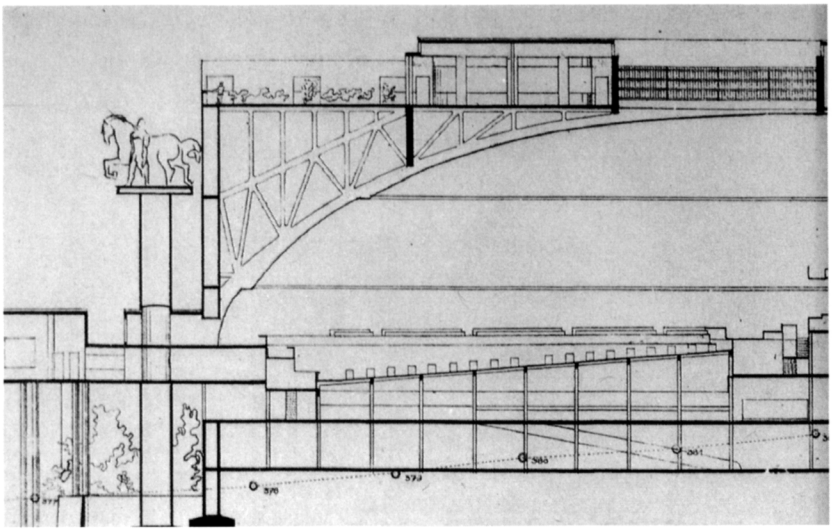
131–134
The pure movie screen on the front toward the lake calls for the cast shadow of a sculpture. Sheets 12, 13, 14, and 17 from LC's project.





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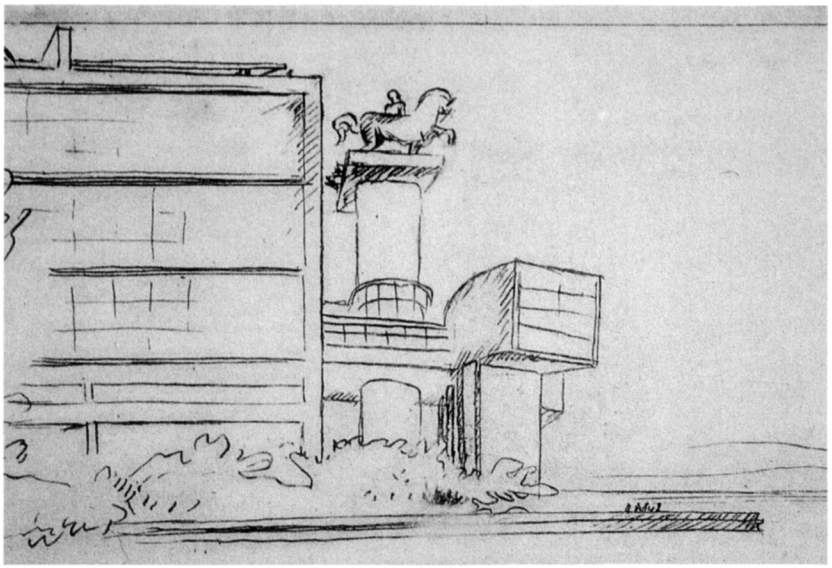

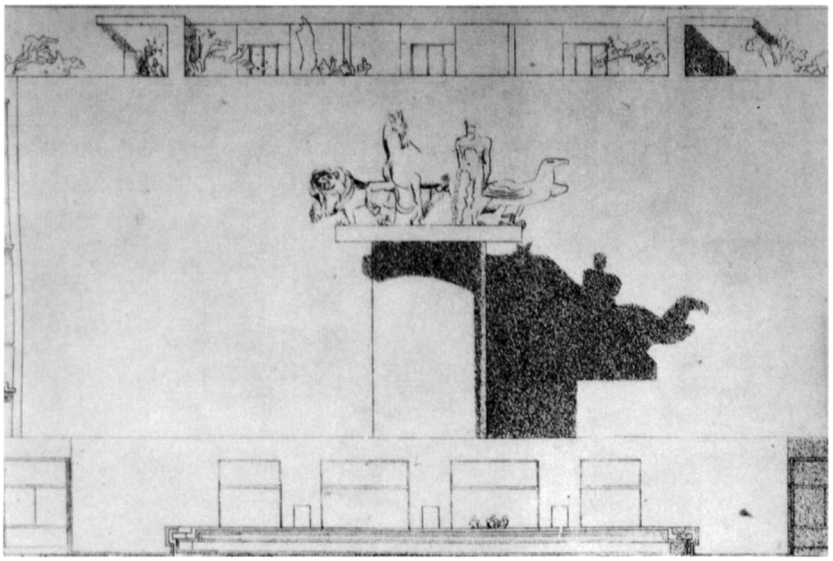

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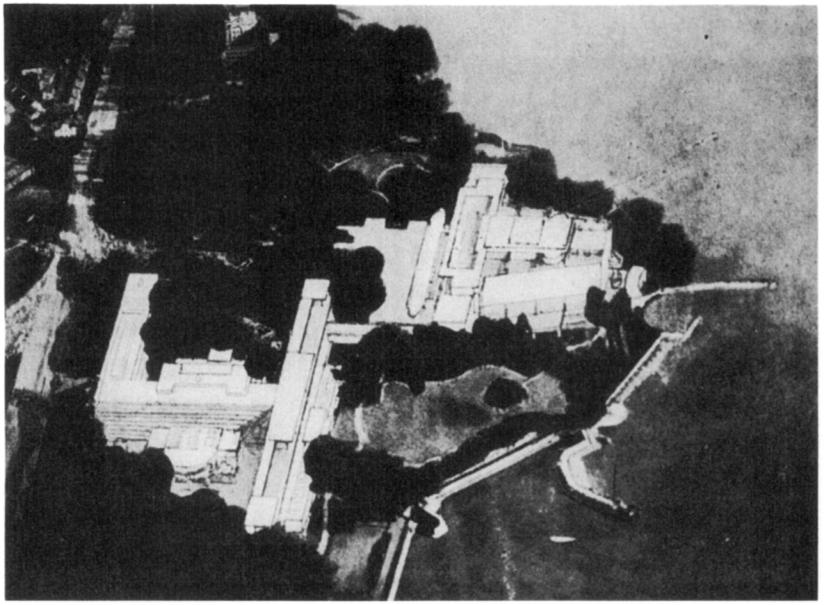
135, 136
League of Nations, water and land. Photomontage by LC and Pierre Jeanneret (135) and the original photograph from the competition program (136).



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almost symmetrical small embankment beginning directly in front of the President's Pavilion. Evidently, the lens is supposed to be supplemented or balanced on the promontory by the spiral form of the water surface inside this additional artificial *petit port du Président* ("small harbor of the President").

The disadvantages that are connected to this "reverse" sequence of forms, and to LC's insistence on the full and pure raising of the building above the ground, are hardly noticeable from the lake. They arise from the crowding and the crush between the Pavilion, the great cylinder, and the hall's front. The access bridge from the hall has to embrace the cylinder, and the cylinder loses its original circular shape if an elevator is supposed to be built inside it. Therefore, the great pilotis is drawn increasingly as a double or twin column, which in the ground plan is indicated as an oval. What we are inclined to call the crowding and crush between stage props (especially clear in figure 124) LC would hardly have found objectionable. His argument remains: the long epoch of building in stone, of baking bricks and laying them layer upon layer, is now definitely a thing of the past. In its place we have the pouring of concrete and the casting and welding of metals. A clear answer that, as we know, has been accepted only hesitantly in the half-century since.

Nevertheless, for his refined breaking and postulating of rules, LC built into this project conspicuous safeguards to bind together the whole frontal structure at the promontory in such a way that harmony predominates. His method is to knit together the separate forms by repeating the same structure in small and large formats. Thus to the many regular-sized pilotis is added an almost solemn great pilotis. Thus the flanks below the President's Pavilion are designed as two thin, white panels repeated twice, which are added as accompaniment, as seconds, to the huge white plane of the movie screen front.

Anyone who designs on such a grand scale and advances such new concepts has to look for correspondingly important precedents. Among the seventeen examples of prehistoric and early historic buildings in *Une maison—un palais* is one that could be viewed as a historical legitimation or even as a model for the special proportions of the frontal facade at the promontory in the Geneva project. The line drawing of the entry hall of the Persian king Darius the Great (521–486 B.C.E.) in Susa shows at least a similarity to it in the proportions of height (figures 137, 138).[20]

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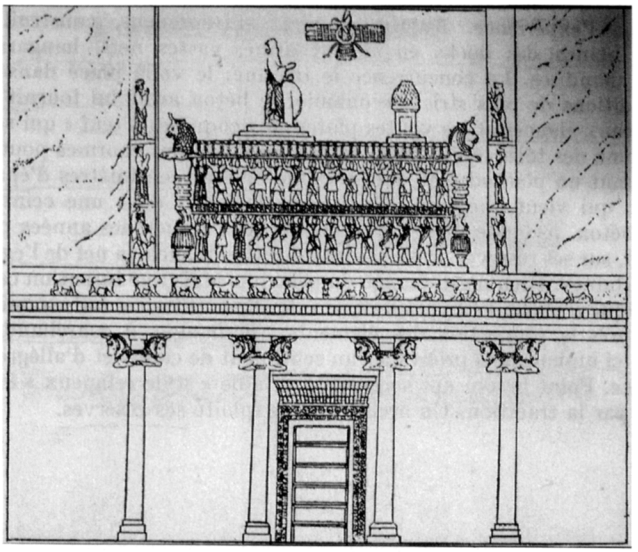
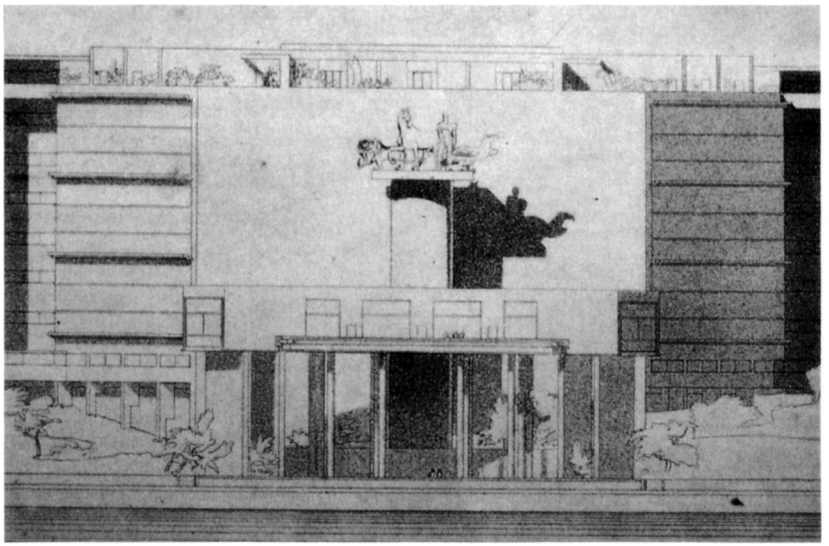
137, 138
League of Nations: do the proportions of the front facade (138) have a distant historical model? Entry hall of Darius the Great in Susa, as drawn by LC in *Une maison—un palais* (137).





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Darius's architect filled half of the height with columns with bull's-head capitals and a running frieze of rows of bulls. LC fills half of the height with pilotis and the Pavilion's body. According to archaeological reconstructions, the ancient front was composed by Darius's architect to include a monumental relief of a throne surrounded by a frame and flanking empty areas. In LC's composition this upper portion shines blinding white as a movie screen but is marked in its middle axis by the great pilotis and its crowning sculpture. Even the height of the throne for the Persian king reaches the same height as LC's great pilotis against the upper area of the structure. We also might ask whether the unusually wide windows of the President's office have something to do with the Persian throne relief. Both are nearly square, their relation of height to width being about 8:10 or 9:10. Finally, the number four for the Persian columns reappears in LC's plan: there are four groups of pilotis (flanked by two thin panels each).

What was it about the architecture of King Darius that fascinated LC? The height of the area with columns? The predilection for square areas? Evidently LC had looked for these in vain in Rome, Greece, and Egypt. The relatively exotic aspect of ancient Persia, which is situated at the imaginary point of the sun's rising over the European hemisphere, does not seem to have intimidated him. He is open to Oriental alternatives, since he decided (under Ritter's influence) for the Balkan route and for Istanbul as the first goal of his travels with Klipstein. The formula for his relativizing of the European architectural heritage seems always *to bring in as new something old that at the same time is something exotic.*

The line drawing of Darius's entry hall acts like a message found in a bottle, containing the drawing but no clear written message—half-cryptic information that LC allows to be deciphered after the Geneva project has been handed in and while the commentary on it that appeared in book form (1929) is still in process of being written. This single indication of the architect's source, offered us by his own hand, cannot fully satisfy our visual curiosity and our thirst for concrete visual clues to his concepts. But it seems that there is more to be discovered in this case.

To begin with, the associations awakened by the sight of the facade on the Geneva promontory point in two directions. In both cases exotic models are involved that are at a far remove from the haunts of the European

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imagination, although they have been explored since the eighteenth century with ever-increasing zeal. One of these models, or, to put it more cautiously, one of these parallel features, stems from the Bosporus (figures 139, 140). The Bebek *kösk* was discussed in chapter 7. Although destroyed in 1846, this once famous *kösk* on the waterfront remained known thanks to Melling's equally well-known engraving. As we concluded earlier, Klipstein and LC could have seen Melling's reproduction either on site, that is, in Istanbul, or later in Paris where it was originally published.

Could LC's memory of the Turkish pavilions, a memory that was sixteen years old at the time but might have been refreshed by a look at Melling's engravings (especially of the Bebek pavilion), have moved him to separate the offices of the President's staff as a special unit and save it for the end (or the beginning) of the *promenade architecturale* on the waterfront? Once we find this connection conceivable, we are not troubled by the transposition and dissemblances it incurred en route from the Bosporus to Perle-du-Lac. The convex, bulging, protruding Bebek *kösk* is turned into the concave, hollowed-out, indented President's Pavilion. This does not amount to a rule violation as we described it above, but is only a simple yet forceful reversal: a hollow instead of an arch, with the difference conscientiously indicated on the ground, namely, by the lens form in front.

The other exotic model seems now to be secretly making the rounds among the professionals, and it is sporadically mentioned, but with a fortuity that makes it stick in one's imagination all the more. In 1928 Adolf Behne, one of the leading German voices in the struggle for *das neue bauen,* published in Stuttgart a small book, a kind of brochure entitled *Eine Stunde Architektur* (One Hour of Architecture). The cover shows a detail of the then recently completed housing development at Weissenhof in Stuttgart: one of the roof gardens that LC had just built on top of his two buildings (figure 141).[21] The scene high above the roofs and steep hills of Stuttgart is inhabited by two surprising old German guests from one of the master engravings of Albrecht Dürer (1514): St. Jerome and his faithful lion. The idea for this photomontage is very witty, although the execution is unsatisfactory, especially because of the collision of the different scales of the images. Jerome "is the saint of the indoors," writes Heinrich Wölfflin. "He translated the Bible from the original into Latin, he is a scholarly, contemplative man who needs

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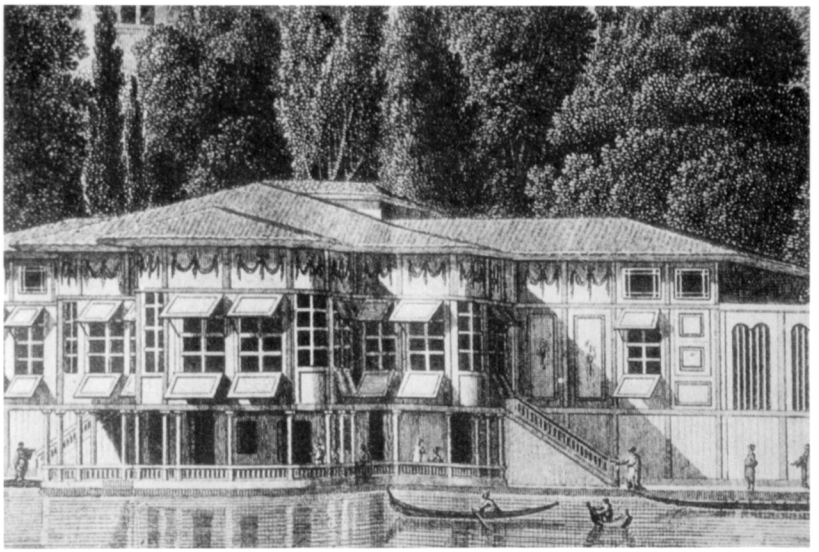
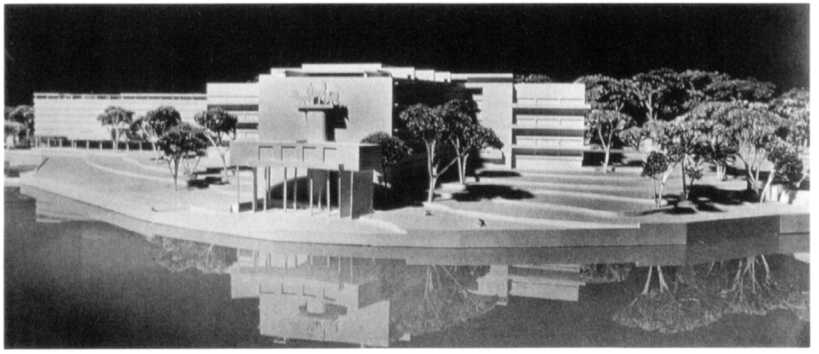
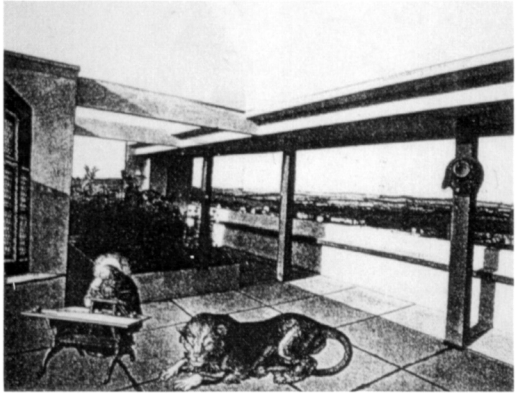
139–141
The President's Pavilion: are there a second and a third model? The Bebek *kösk* (139) compared with the Zaborowsky model (140); Adolf Behne's roof garden of St. Jerome (141), from *Eine Stunde Architektur,* 1928.







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the closed interior and has to have silence."[22] Behne picks this "saint of the indoors," places him in LC's new penthouse chamber without walls, and thus makes immediately clear that his "hour of architecture" is supposed to be a lesson, and one that is certainly a good deal polarized.

The polarization consists of his showing on page 4 extreme types of climate-related building traditions: the igloo of the Eskimo (figure 142) that he introduces briefly as "the house of the Nanuk," and dwellings on stilts from the Far Eastern tropics (figure 143) that he calls "jungle village in Siam." It is obvious, although not expressly noted in his almost aphoristic text, that Behne wants to direct our attention not only to the wide span of climatic conditions represented but also to the wide scope of the affinities of *das neue bauen.* Both the flexibility of nomadic Eskimos and the elevation above ground of the tropical pile dwellings are mirrored in the modern. And Weissenhof, which Behne takes as his point of departure in the photomontage of his book cover, reappears once more with the same housing block by LC, but this time in a striking photograph that emphasizes as clearly as possible the effect produced by the pilotis, because the garden wall stops abruptly right below the pilotis sequence (figure 144). In 1928 Behne certainly knew how LC's League of Nations project looked and that the Villa Savoye was in the process of being built near Paris. Hence he sums up these inspiring impressions under one name—"jungle village."

This is not surprising, or is so only in the sense that one wonders why LC himself did not come up with this comparison much earlier. Out of self-protection? Did he talk and write about all sorts of things imaginable but not about what remained a sensitive issue because it involved his personal memory and his personal motivation?

The proposition that the President's Pavilion, with its high-rising pilotis, evidences an intended strong resemblance to the jungle village of Siam is beyond any serious doubt. The next question is why LC is the architect who thematized this relationship so persistently, and whence his motivation to do so arose. LC comments: "At the fore, with great elegance, stands the President's Pavilion" (*Au devant, tout en élégance, le Pavillon du Président de l'Assemblée*).[23] If this small, curved building on pilotis is designed with elegance, we are tempted to add in conclusion, it is the *élégance d'un bon barbare,* the elegance of a noble savage.

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142, 143
Also in Adolf Behne's book, the house of the Nanuk (142) and the jungle village in Siam (143).

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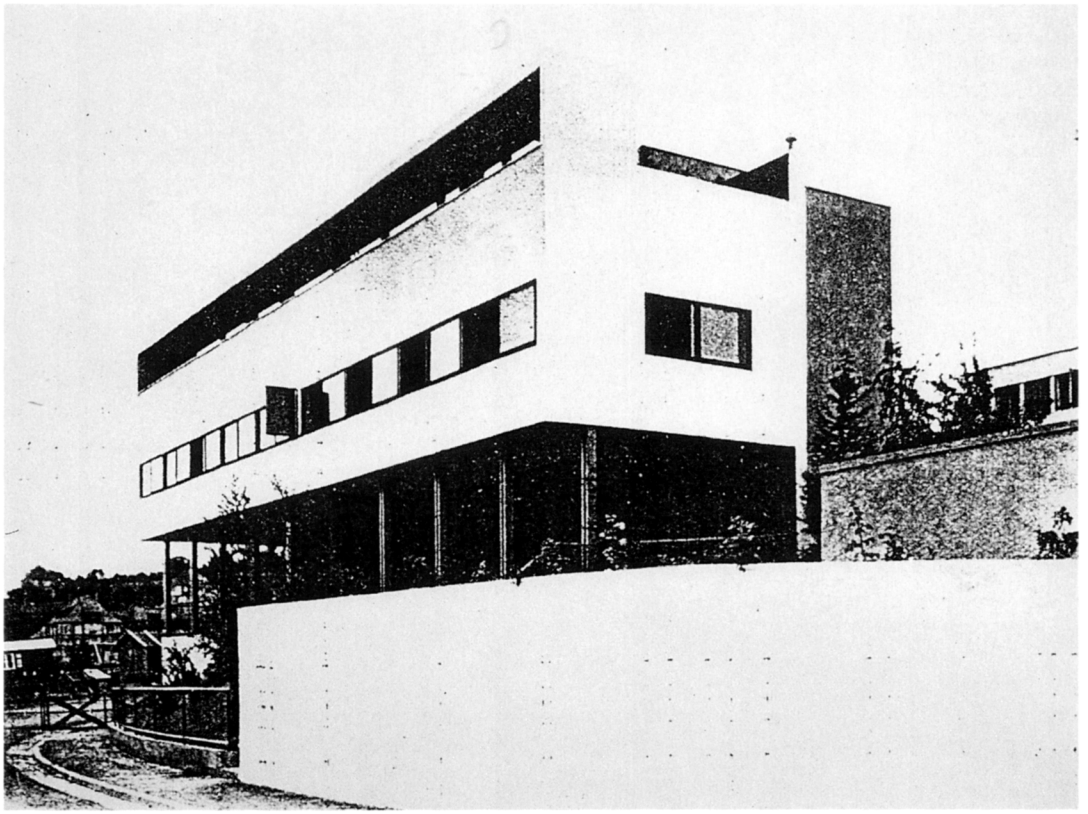

144
Adolf Behne heightens the effect of the pilotis in his Weissenhof photographs.

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The final chapter of *L'Art décoratif d'aujourd'hui* is titled "Confession." It is an emphatically personally colored afterword. For French ears, and especially for the ears of French-speaking Swiss, the choice of the word "confession" is a clear reference to Rousseau's soul-baring autobiography *Les confessions,* with which, as documented historically, the Jeanneret family in La Chaux-de-Fonds was thoroughly familiar.

A friend had urged him to write this "confession," says LC, because the book's readers could not know that his opposition to the decorative crafts was the result of a "long odyssey through the archipelago of knowledge."[24] LC's friend justifies his insistence as follows: "You end your text with a rejection of the crafts. Certainly, all of your works we know are completely denuded of ornaments. People will think: this man has no idea of the beauty of a flower and of the song of the great Pan whom nature itself hears with trembling. He is overfed with theory, his heart is desiccated, it is easy for him to annul an important sphere of emotions along with the manifold arts that express it and eternalize it."[25] (*Vous concluez par la négation de l'art décoratif. Bien. On ne connaît de vous que des oeuvres d'architecture totalement dépouillées d'art décoratif. On pensera: cet homme ignore la beauté de la petite fleur et celle du chant du grand Pan faisant tressaillir la nature. Il est nourri de théories; la sécheresse habite son coeur; il lui est aisé d'annuler, d'un raisonnement de sa plume, un cycle important d'émotions et les multiples arts qui les intègrent et les perpétuent.*)

How alive and flexible is this autodidact of thirty-eight years, who in an almost graceful way accepts his friend's criticism and allows himself to be reproached for his dried-up heart. How completely different is his (still) open mind from the pretentiousness, the rigidity and hardness of his later years! First he announces in the "Confession" the praise of his origins and the praise of his master, Charles L'Eplattenier. "My master was a brilliant teacher and a real man of the woods, and he made us into men of the woods. . . . Thus I too was for a long time a regionalist. . . . For over ten years and longer we composed a kind of hymn about our land. For my master had said: 'We will renew the house and revive the lost arts and crafts.'"[26] (*Mon*

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maître, un excellent pédagogue, véritable homme des bois, nous fit hommes des bois. . . . Que je fus bien longtemps—moi aussi—un régionaliste. . . . Pendant dix ans nous composons une espèce d'ode à notre pays. . . . Mon maître avait dit: Nous allons rénover la maison et reconstituer les beaux métiers disparus.)

After this beginning, he studies abroad. He explores "the great cities, one after the other, in order to learn . . . I have experienced their brutality . . . a dog's life. . . . I am an apprentice who is looking for a master . . . in Paris, Vienna, Munich, Berlin."[27] (*La brutalité des grandes villes explorées alors, l'une après l'autre . . . Vie de chien perdu. . . . Je suis un gosse qui cherche . . . un maître . . . à Paris, à Vienne, à Munich, à Berlin.*)

Because a good number of the masters of architecture have disappointed him and his thirst for education is big, he strives to educates himself further in libraries and museums. "A search for truth in the library. The books! The books are innumerable—where is one to begin? Suddenly one falls into a hole. It is dark and one cannot find any meaning. However, from the museums I acquired certitudes without holes and without snares. . . . The works of art in the museums are good teachers. . . . I posed questions about art only to works that were *not called Great Art.* Naturally, I went on Sundays to see the Cimabues, the Bruegels, the Raphaels, the Tintorettos, etc. But to work, to draw, . . . I sat down where at that time no one set up his easel—far from the Grande Galerie. I was always alone with the guards."[28] (*Recherche de la vérité dans les Bibliothèques. Les livres. Les livres sont innombrables; où est le commencement? . . . Et l'on tombe tout à coup dans un trou. Il fait nuit, on ne comprend plus rien. Les musées m'ont fourni les certitudes sans trous, sans embûches. . . . Ce sont de bonnes écoles que les oeuvres des musées . . . je n'ai questionné que ce qu'on n'appelle pas le Grand Art. J'allais bien, le dimanche, voir les Cimabuë, les Breughel, les Raphaël, les Tintoret, etc. Mais pour travailler, pour dessiner, . . . je m'arrêtais là où de ce temps, personne ne plantait son chevalet,—bien loin de la "Grande Galerie." J'étais toujours seul . . . avec les gardiens.*)

He enumerates the Parisian museums that became important to him, from the Musée Cluny and the Guimet to the Trocadéro. He puts emphasis on the museums of natural history and of ethnography, those in Paris, Berlin, and London, but also those of Belgrade and Florence, Naples, and Pompeii. "What great lessons, what great lessons! What great drawings that

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conscientiously pose questions and then respond to these questions with a precise encirclement of an eloquent form."[29] (*Que de leçons, que de leçons! que de dessins qui inscrivent anxieusement et qui répondent aux questions par la cernure précise de la forme éloquente.*)

An unequivocal result emerges: his learning instrument par excellence is the drawing hand. Thereby he develops a logic of visualization of the greatest directness and endurance: he filters his questions out of his first, summary impressions—"the work always replies" (*l'oeuvre répond toujours*).[30] It seems worth noticing that he stays away from the greatest masterpieces in the Grande Galerie and that he visits only on Sundays. Is this a bit cowardly or affected? To avoid (or save for later) the perfectly achieved? He needs the flaw, the not-entirely-perfect work, he has to observe from up close the struggle and the threat of failure in his innumerable precursors so as not to feel excluded, not "to fall into a hole" as in the libraries, to recognize the traps and snares, to get his courage up among his equals. From the accumulated riches of such question-and-answer drawings he can now select examples and intersperse them into the text of the "Confession." They deal with the budding plant, with the crawling salamander, with the so-called minor arts from all continents.

Three years later, in the lectures for the ETH and for Madrid (subsequently published as *Une maison—un palais*), he repeats this falling back upon the piled-up riches of his learning by drawing (figures 145–149). Now he uses examples that lie further back chronologically, to make the beginnings of architecture and art his witnesses. For, at the very moment when he has presented his own greatest and most daring total concept in the League of Nations project, he needs a historical mooring. On five book pages he now attempts such an anchoring, offering the above-mentioned seventeen examples of the primitive house—fourteen of which are drawn by hand, thirteen by LC and one by his friend Amédée Ozenfant.

A specialist in prehistory and early history would be amazed at LC's detailed knowledge, available mainly to professionals. (For instance, what might "crannogs" mean to a layperson?) On the other hand, we are irritated by at least one of his examples, the hall of Darius in Susa (fig. 137), because LC's reconstruction of the building was already quite outdated given the state of archaeological investigation in 1930.

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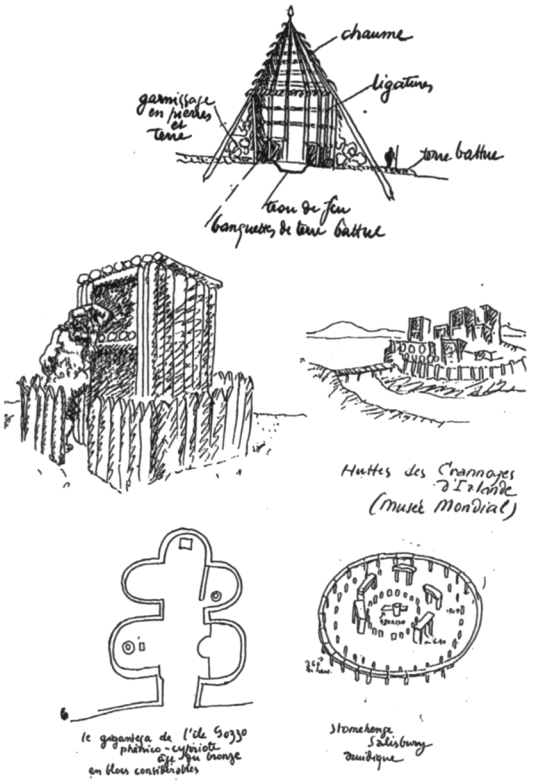

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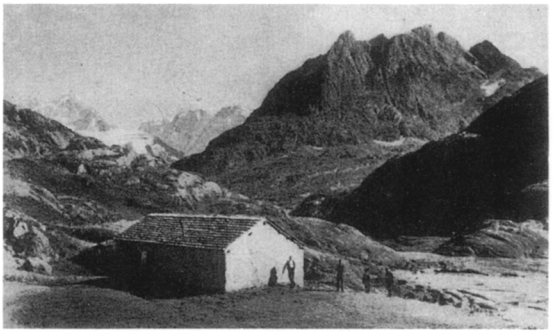
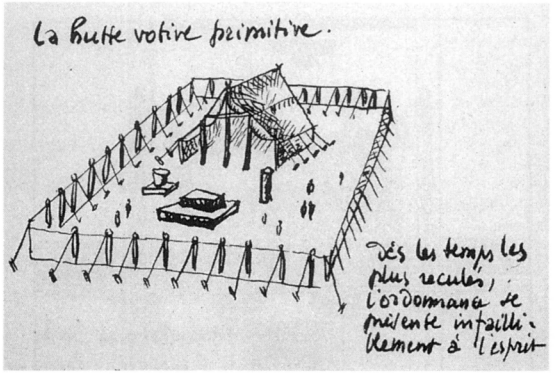
145–149
LC's great invocation of prehistory and early history in *Une maison—un palais*. Especially now, when he proposes his most audacious total concept with the League of Nations project, he urgently needs a mooring in history. (For identifications, see text.)





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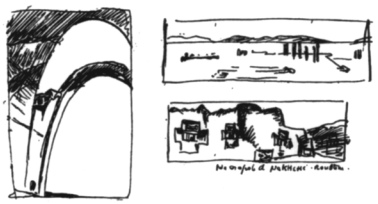

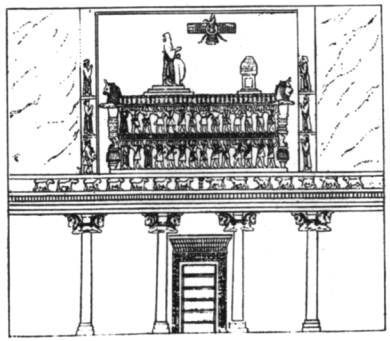

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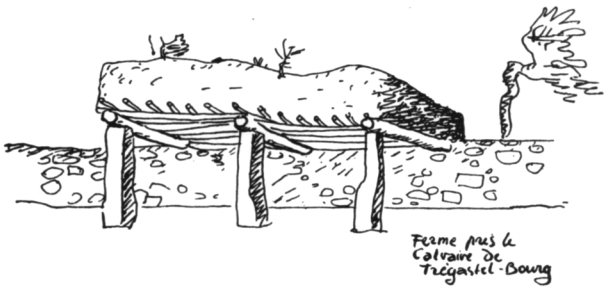

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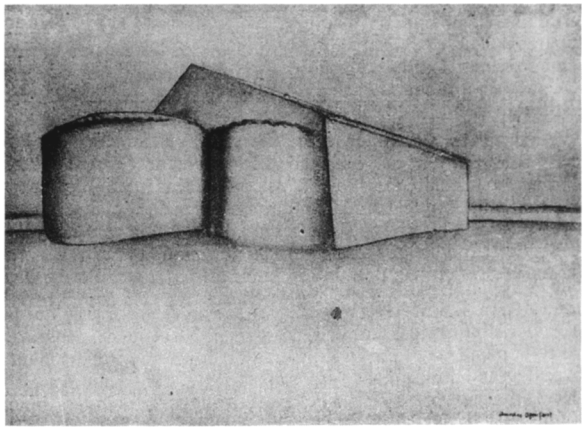

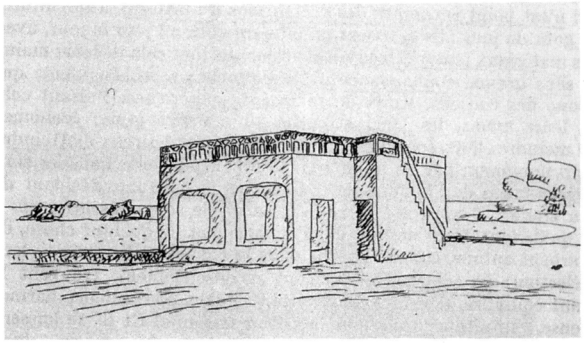

149

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Thus his anchor is cast somewhat hastily, creating a mild confusion. Yet it discloses a valuable method. For LC always adheres to a rough chronological grouping; from the beginning of archaeology at the oscillating border between prehistory and early history, his sketches rise to the timeless primitivism of ethnology. The pattern of his selections may be further clarified if one attempts a regrouping according to type of material and manner of construction (figure 150). To avoid mistakes or inexactness, I assign to each individual illustration a letter (A to R), according to the order in which they appear in LC's book.

A glance at the form as a whole is also a glance at the choice of materials and the manner of construction. For instance, what turns up as a box in the rougher wood construction of early history is later refined, in stone and brick building cultures, into cubic and squared forms, leading also to flat roofs. As soon as we regroup LC's examples *in accordance with their form as a whole,* it becomes evident that he gives most attention to the type of the cube with a flat roof. Examples (B) and (C), the mysterious crannog drawings, now stand out for the first time.

I should like to include in this group also the bird's-eye view of Stonehenge (E) because it is drawn as a variation or further development of the crannog island (C). Certainly, in the ground plan of Stonehenge the circular elements dominate. Yet LC draws them in a way that makes them seem like an analogy to the circular palisades enclosing the crannog island. He emphasizes horizontality and flatness in the ring-shaped outer arcade and even more clearly in the five large "triumphal arches, which under his hand begin to look like sacral variants of the housing boxes of the crannog.

The only strange thing is that both Stonehenge (E) and the *Giganteia de l'île Gozzo* (D), which in LC's commentary both appear as early instances of cyclopean size, are shown in the book smaller than both crannog drawings (B) and (C) (figure 145). LC seems to devote special attention to these two drawings, and from the commentary on the opposite page it becomes immediately clear why.

"Here now the primitive house" (*Voici la maison primitive*)—this is the beginning of a short, compressed explanation that doubtless belongs among the most important tenets of the whole book. "Here man reveals himself as a creator of geometry; he is incapable of acting without geometry"

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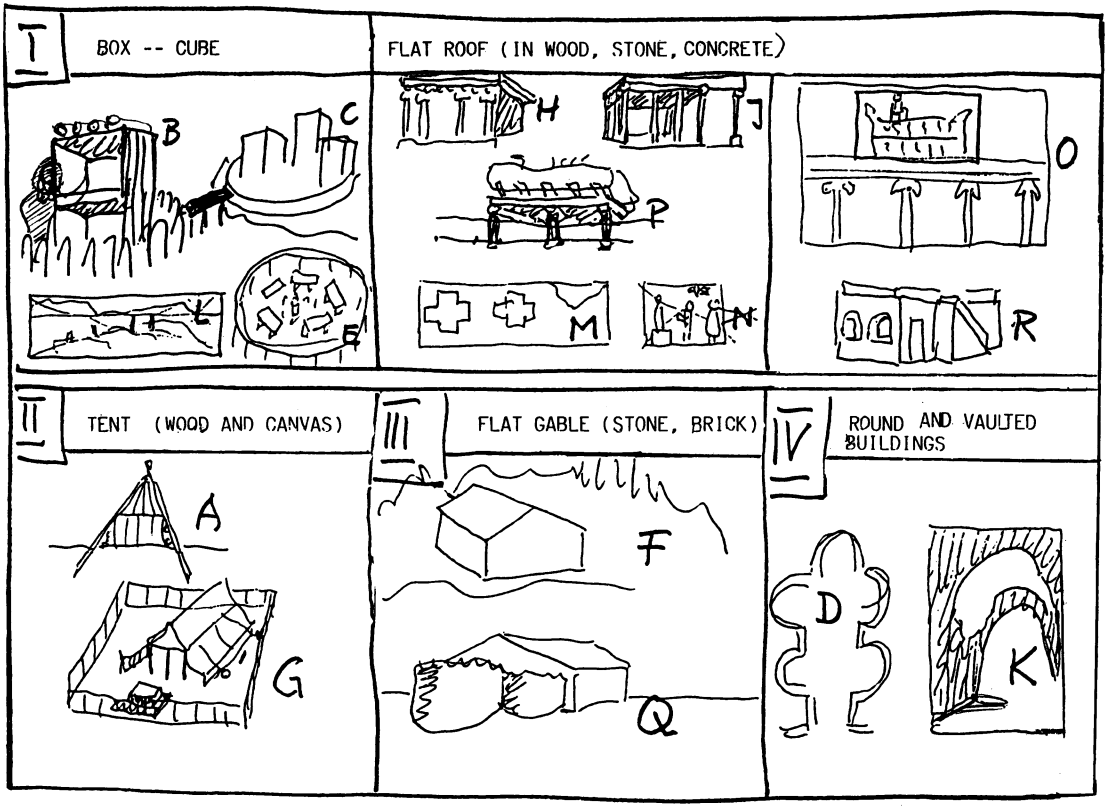

150
LC's group of drawings concerned with early history as regrouped by me, according to the primary forms of box–tent–flat roof–vaulted building.

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(*Là se qualifie l'homme: un créateur de géométrie; il ne savait agir sans géométrie*).[31] Man is marked and distinguished by his capacity for geometry, even to the point of a compulsion, for he cannot act without it! As an illustration of this literally fundamental thesis LC chooses the tent (A), a detailed crannog hut (B), and a crannog settlement (C). And of course, the bilaterally designed Stonehenge is nothing else but a testimonial of geometry, sacred in rank and cyclopean in scale. However, what must be emphasized here is that neither the tent nor Stonehenge is astonishing in this context, whereas the box, or more precisely the vertically raised double box of the crannog, is highly astonishing. Whoever heard that the earliest human shelters, supposed to represent the most elementary survival strategy, could afford, of all things, the luxury of the nearly pure form of a cube and a flat roof cover?

We are certainly ready to follow LC's almost absolute fascination with geometry over long stretches of time, especially as far as the work he built up to 1930 is concerned. But this projection of geometry back into the dawn of history goes too far. We sit before the two crannog drawings (B) and (C), lured by the bold imagination of the young master who is incapable of defending it with something like a solid argument—or is it the case that in the end he has historical sources to fall back on? We will not forget this question.

But first a closer description of *Homo geometricus,* added by LC in the commentary:

He is exact.
No piece of wood is left in its original state or form, no joint is without its assigned function.
Man is an economical being.
Type houses are the peak of economy.
In geometry it is the composition of order that endows the noble and the beautiful with power.
Isn't this hut one day going to become the Pantheon of Rome, consecrated to the gods?[32]

(*Il est exact.*
Pas une pièce de bois sans sa force et sa forme, pas une ligature sans fonction précise.
L'homme est économe.

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La maison-type est un summum d'économie.
Dans la géométrie, l'ordonnance porte en puissance la noblesse et la beauté.
Un jour, cette hutte ne sera-t-elle pas la Panthéon de Rome, dédié aux dieux?)

These definitions evidently apply to both types, to the tent and to the box. It is not surprising that for this reason LC adds one more comment that applies only to the box: "We see man here in the darkest, most terrifying periods: nature is hounding him. His house stands [nevertheless] straight and rectangular. Each piece of its structure is a powerful source of architecture."[33] (*Voici l'homme des périodes les plus sinistres, les plus angoissantes: la nature le traque. Sa maison s'élève droite et rectiligne. Chaque pièce de sa structure est une puissance d'architecture.*) I attempt to underline the implied contrast in these statements by adding "nevertheless" to the quotation, to show that this passage suggests something like a defiance of adverse conditions. LC's contemporary Ernst Bloch, the philosopher of hope, might say here, "Geometry as a gift and geometry as an inborn compulsion both confirm the dignity of man's upright gait."

The next page (figure 146), with an alpine hut with flat gable (F) and a gabled tent (G), expands the typology but also delimits it, for the following illustrations all fit one of the already established four categories: cube, tent, flat gable, and round building. No one would maintain that LC spent a lot of time worrying about the coherence of these types. He digs into his drawing archives, searches among his travel impressions and museum sketches; he does this spontaneously and also quickly, yet always seriously concerned to combine his view of earliest times solidly with his view of the architecture of the future. He does this unconsciously, in the manner of Jean-Jacques Rousseau, and consequently "knows" what was important in the earliest of times just as his model "knew" this.

We assign the alpine hut (F) and the ceremonial tent pointed like a gable (G), both of which LC presents under the designation "flat gable," to separate groups. They turn out to be members of a system of two stages, which shows how "man's house becomes God's house" (*maison d'homme devenue maison de Dieu*). This system becomes clearly evident when we compare the alpine hut (F) with the little church (Q) (figure 149, top) drawn and discovered by Ozenfant in the Bassin d'Arcachon in Landes. According to

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LC, this happens "through the sole miracle of a design intention, through the sole miracle of an expressive relation between the prisms of its masonry" (*par le seul miracle d'une intention, par le seul miracle d'un éloquent rapport entre les prismes de ses maçonneries*).[34]

This is an important point for LC, because he is occupied with the question of how a fisherman's hut in the Bassin d'Arcachon becomes a palace for the League of Nations, or how the crannog box becomes a Roman Pantheon. All this asks again why and how both the early *and* the late stages can have or do find their dignity. Therefore he adds a kind of summary: "Architecture as a given reality is expressed by geometry, is rooted in the three causes: standard types, needs, and means, and it rises from the unconscious to consciousness" (*Le fait architectural exprimé par la géométrie, raciné dans de profondes causes standart (types), besoins et moyens, s'élève de l'inconscient vers la conscience*).[35]

If I understand it correctly, this sentence, which admittedly oscillates between insight and banality, amounts to a plea for the architect's unconscious creation, which is justified as long as it retains at the same time a genuine striving to make artistic decisions conscious. Since in the case of the ceremonial tent (G) we assigned priority to its material and its nomadic flexibility (transportable frame and envelope), it becomes manifest that LC represents here for the second time the step from man's house to God's house. This time it is the step from the residential tent (A) to the ceremonial tent (G), which can be viewed as a kind of a mobile chapel for services of commemoration, of giving thanks, and of consecration.

Among the representations of earliest architectural facts in *Une maison—un palais,* the ceremonial tent (G) might appear as a déjà-vu for some readers. In fact, this drawing is related to an illustration in *Vers une architecture,* which in that book is accompanied by a ground plan and a section (figure 151). Why does LC take the trouble to change the bird's-eye view he made in 1923 (figure 152) to a different perspective and axis and to draw it anew (bungling the vanishing point in a charming way)? Evidently he wants to make the front, that is, the ceremonial tent's facade of entry, visibly comparable to the alpine hut (F). What is at stake here is the realization of the "expressive relation between the prisms of its masonry" (the tent's comparable "prisms" being the additive facetlike fabric sections). LC needs this change

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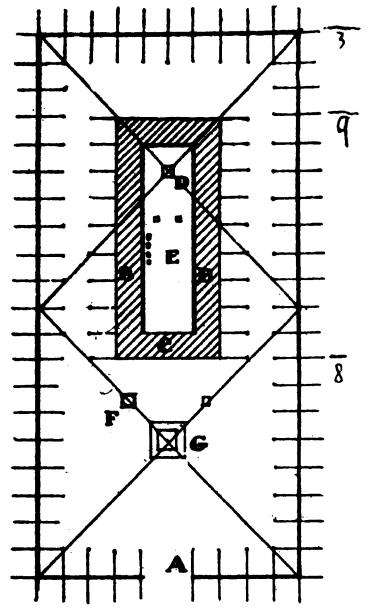
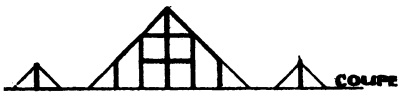
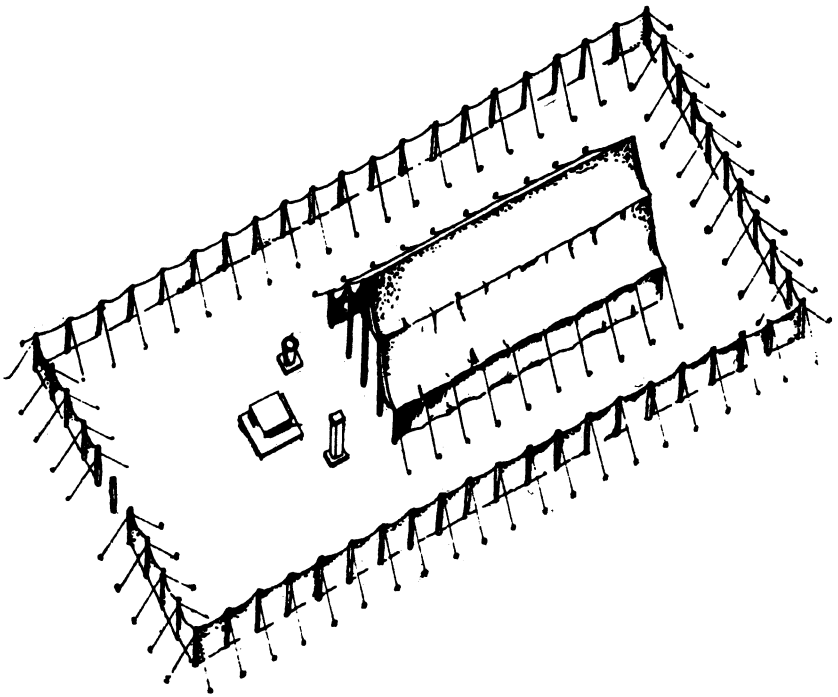
151, 152
The tent was already a theme in *Vers une architecture,* 1923.



TEMPLE PRIMITIF

A, entrée;
B, portique;
C, péristyle;
D, sanctuaire;
E, instruments du culte;
F, vase de libations;
G, autel.





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of optics to make the relationship between the squared prisms of the understructure and the triangular "prism" of the gable easier to see and comprehend.

Vers une architecture, also, offers a great array of historical confrontations. Its illustrations of these comparisons and contrasts, which challenge both the old and the new, extend from Egyptian and Indian temples to Paestum and the Parthenon; the *leçon de Rome* is celebrated, and, of course, Byzantium-Constantinople-Istanbul is not left out, from the Hagia Sophia to the green mosque of Bursa and Süleymaniye.

But the real opposite pole to the modern, for the LC of 1923, is the Acropolis of Athens with the Parthenon. It is illustrated most frequently, and a masterful photograph by Albert Morancé of its colonnade is even represented twice (*Vers une architecture,* pp. 116, 172). An act of self-defense? Certainly, but also much more than that. He had to grab the bull by the horns and not let go. He had to address in a new and different way what the hated academicians venerated as their highest ideal and claimed as their own. *He had to find an approach that did not exclude but included the modern.*

This is why, of the main tenets assembled in the opening chapter of that book and repeated later like a litany (just as he repeated photographs), none is more important than the Parthenon. It is no accident that the Parthenon is the only name cited in that chapter. The seemingly innocuous sentence reads: "The Parthenon is the product of selection applied to a standard" (*Le Parthénon est un produit de sélection, appliquée à un standart*).[36] Provocatively enough, this sentence occurs under the heading "Les autos"; and earlier, under the heading "Les avions," the airplane is likewise declared an exclusive product: "The plane is the product of the highest selection" (*L'avion est un produit de haute sélection*).[37]

LC describes the Doric order as an exclusively developed and selected product that then goes into serial production; that is, the repetition of the perfect and the perfect repetition. With the help of the two concepts "standard" and "serial production," this Doric order with its exquisite fluting is brought down from its exclusivity and declared comparable with the automobile and the airplane; brought down and at the same time raised on a new, fresh pedestal free of dust. This is the double focus we have constantly to keep in mind. LC's thinking describes an ellipse, and adherence to this double

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focal point gives to his thought a quality that goes far beyond mere provocation.

Absorbed by LC's confrontations with fluting and cornice profiles, one easily overlooks that *Vers une architecture* contains a descent into prehistory and early history; namely, in the discussion of the ceremonial tent, and this accompanied moreover by a legend by LC on primitivism, beginning with the sentence: "Primitive man has stopped his cart, he decides that this will be his soil; he chooses a clearing, cuts down the trees in his way, and levels the ground all around . . ." (*L'homme primitif a arrêté son chariot, il décide qu'ici sera son sol. Il choisit une clairière, il abat les arbres trop proches, il aplanit le terrain alentour . . .*).[38] Are these anything more than the routine remarks that an architect educated, enlightened, and moved by certain ambitions as regards theory has been expected to make on the subject ever since the eighteenth century? Obviously, the most important model in this regard is Rousseau's "picture of primeval time," "boldly outlined" in his *Discourse on Inequality* (see chapter 14 above). Less obvious but still quite probable is that LC was acquainted also with the primitivist legend of the architectural theorist Laugier and that of the Revolutionary architect Ledoux. The impulse for LC's version of primitivism is thus understandable, but the result offers hardly anything original. Only five years later, in 1928, with the publication of *Une maison—un palais,* the problem of first origins moves to the center. This is proved by the great number of drawings relating to it, as well as by the central confrontation of the hut and the palace. The mystery of the crannog will also prove to be an intensive encounter with the world of earliest beginnings.

However, LC would not be LC if what became his main theme in 1928 were not to announce itself as early as 1923. This is documented by at least two passages from the legend on primitivity: "There is no primitive man; there are primitive means. An idea is a constant power, effective since earliest times."[39] (*Il n'y a pas d'homme primitif; il y a des moyens primitifs. L'idée est constante, en puissance dès le début.*) We can assume that Rousseau would not object to these two sentences, since the Good Man, as he postulates him at the beginning of history, could not have been "a primitive." The second quotation also comes close to Rousseau, because it can be viewed as a transposition of the musical sphere into the visual sphere: "Geometry is the language of humanity. While gauging the respective distances between ob-

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jects, man invented rhythms, such rhythms as are perceivable to the eye and clear in their relations. These rhythms are at the birth of human activity. They resound in man with an organic force that enables children as well as old men, savages as well as scholars, to draw the Golden Section."[40] (*La géométrie est le langage de l'homme. Mais en déterminant les distances respectives des objets, il a inventé des rythmes, des rythmes sensible à l'oeil, clairs dans leurs rapports. Et ces rythmes sont à la naissance des agissements humains. Ils sonnent en l'homme par une fatalité organique, la même fatalité qui fait tracer la section d'or à des enfants, à des vieillards, à des sauvages, à des lettrés.*)

Let us now complete our regrouping of LC's drawings in *Une maison—un palais* relating to first origins (figures 145–149, 150). The two strangely top-heavy buildings with flat roofs (H) and (J) on page 43 of that book (figure 147) belong to the box/cube type. LC designates them in his own handwriting as "farmers' dwellings on the shores of the Black Sea (cross section)" (*Habitations de paysans au bord de la mer noire* (*coupe transversale*)).[41] The hall-like building (J) one might possibly view as a section; building (H), looking more like a full view, suggests more clearly that the pronounced heaviness of the flat roof points in the direction of a *jardin suspendu,* of a roof requiring a heavy enough base. In any case, LC can already point to an early stage of the roof overgrown with vegetation "from the other end of Europe" (*à l'autre bout de l'Europe*), namely in Brittany.[42] On a "farm near the Calvary of Trégastel-Bourg" (*ferme près le Calvaire de Trégastel-Bourg*) he discovered a primitively overgrown roof even more top-heavy than the examples from the Black Sea, one that leans for support at the back and in the front rests on three stone supports (sketch P; figure 148). As noted in chapter 1, LC persists in demanding an overgrown flat roof more strongly than most of his like-minded colleagues, because he hopes to achieve a *natural* cover for the roof area. Moreover, now and again he entertains the idea that the roof garden is a "restitution" of the ground occupied by the building.

I come now to the proof that LC's drawing of the facade of the audience hall of King Darius (O) has something to do with the box/cube type. This facade is important because, with its proportions, with the spacing of its columns, and with the almost square frame of the relief area, it seems to provide a legitimation or at least an impulse for LC's design of the front of the League of Nations project facing the lake (see chapter 16, especially figures

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137, 138). Acknowledging that Persian art of the Achaemenid phase is certainly far removed from Western art in every way, we note that the building represented in drawing (O) was and is included in the collection of the Louvre in Paris by way of its significant bull's-head capital (figure 153).

This capital dramatizes something the Greeks and Egyptians were not capable of dramatizing to this extent, namely, *le poids des choses,* "the weight of things." The twin bull figures set back to back (in Pasargadai we find similarly positioned lions, in Persepolis lions' claws, birds' claws, and also bulls) form a "saddle" made exactly big enough to hold the heavy crossbeam, on top of which the long beam rests as a lintel on the bulls' heads and horns. An exceptionally strong and vital representation of load and support!

These double-bull capitals from Susa stem from a building type called *apadana* (reception or throne hall), considered by archaeologist Heinz Luschey to be a special Iranian innovation.[43] Moreover, these double capitals, developed in the Achaemenid period starting with Darius the Great, were also an innovation. They still impress us by the demonstrative staging of their load-bearing function and their manifest celebration of physical weight. In size the *apadana* of Susa must have been something between the reception hall of the palace of Pasargadai (540–530 B.C.E., reconstruction by F. Kefter, 1934; figure 154) and that of Persepolis (about 500 B.C.E., reconstruction by F. Kefter, 1966; figure 155). Both are most remarkable cubelike buildings and a certain match for young LC's wildest dreams of geometry.

But as if this were not enough, after his first encounter with Persian art, LC's passion for wandering around in museums brought one more monument before his eyes that seems to have moved him even more strongly, although the drawing that documents this encounter is somewhat confused and difficult to read (sketch M; figure 147, center right). The monument in question is the necropolis of Naqsh-i-Rustam near Persepolis (figure 156). There, in the steep rocks of the mountain Hussein-Kuh, are carved a number of royal graves. LC's sketch renders the outline of the mountain and indicates at least three shapes that resemble the form of the Greek cross. What is inscribed in these crosses and whether one has to read them as flat or recessed remains unclear. But when one compares LC's caption *Nécropole de NakHCHé-Roustem* with the present spelling and sets photographs of these monuments next to his drawings, one realizes what he was trying to capture with his much too small and narrow sketch.

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153–156
LC is fascinated by Persia. The bull's-head capital in the Louvre (153); the reception or throne hall (*apadana*) (154, 155); the sepulchers in the rocks of Naqsh-i-Rustam (156).

153

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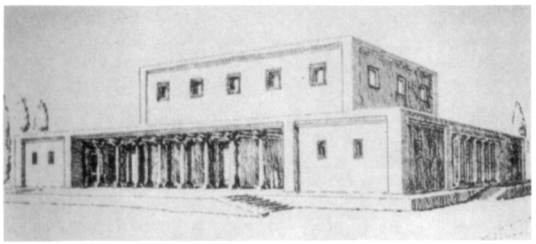

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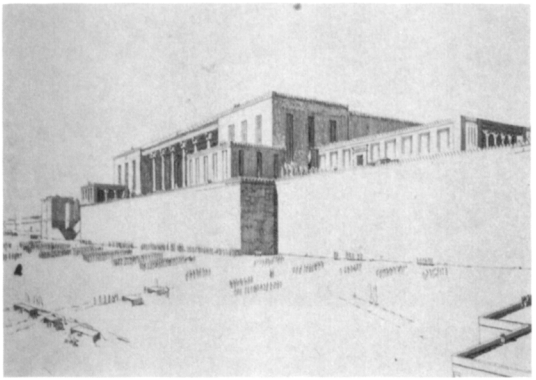

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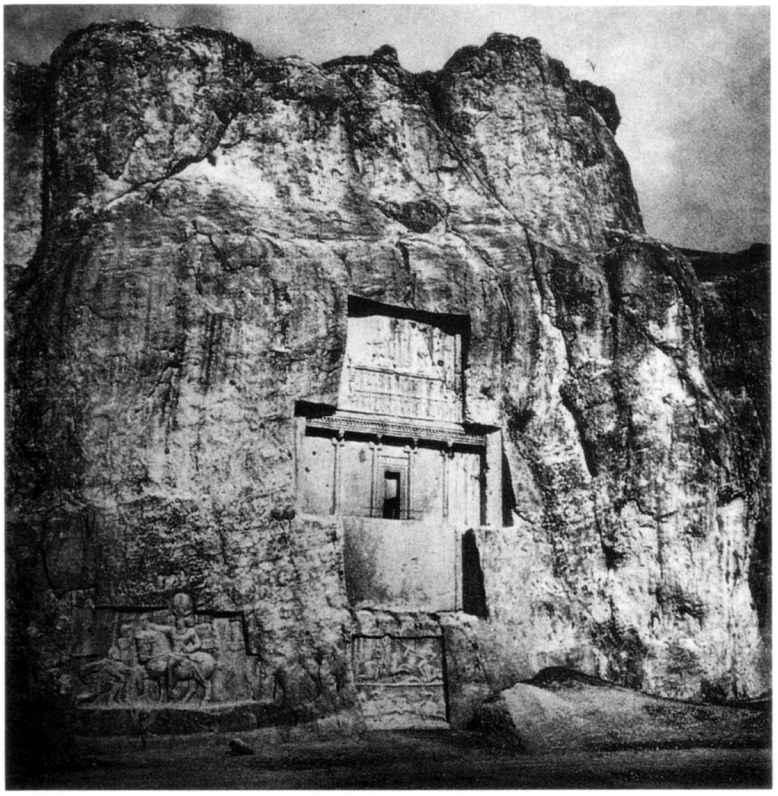

156

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That in the same mountains there are Achaemenid as well as Sassanid royal graves, Luschey sees as proof that the Sassanids saw themselves as renovators of the old Persian Empire.[44] The most important grave from the old empire is that of Darius I, reliably dated by inscriptions. It is the prototype of the later Achaemenid royal graves and it must have impressed LC for understandable reasons. Luschey comments as follows: "The upper part with the figures of the king, the deity, and the conquered peoples is to be assigned to the Elamite tradition of the third millennium before Christ, the grave's facade on the horizontal arm of the cross to the Medean tradition. The lower, empty, flattened part, according to K. Erdmann, is reserved for cult celebrations, but it presumably served to make the grave inaccessible."[45] Apart from the fact that grave robbers can easily use a ladder to get to the entry, Erdmann's explanation of the empty area as a cult site does not prevent us from viewing it simply as the wall of a podium, as it actually occurs in the reconstruction of the *apadana* of Persepolis (figure 155). In any case, the total emptiness of this area is so striking that it immediately recalls the framed empty space on the north facade of the Villa Schwob (figure 13) and the white movie screen on the League of Nations facade facing toward the lake (figures 127, 130).

Two further aspects must have arrested LC's attention. First is the primary role assigned to architecture on this funerary site: the house of the dead is conceived as an *apadana* (reception hall), and the enormous task of expressing the continuity, endurance, and past glory of the kingdom is transferred almost completely to the architectural elements. The gate and its proportions, the columns and their rhythm, the lintel with its ornaments cannot report the individual deeds of the ruler (this is done by figurative reliefs), but they certainly can articulate the principles of ruler and state: architecture as a mirror of the ruling order and life's rhythms.

Secondly, the way in which these graves are carved into the rocks is additional confirmation of LC's thesis of *Homo geometricus.* The irregular, natural vertical wall admits as the first human infringement the shallow incising of the absolute vertical plain. This encroachment, which has the effect of a primary, a priori justifiable action, can be described with LC's formulations in the commentary on the crannog drawings. We have heard them already: "Here man reveals himself as a creator of geometry; he is incapable of acting without geometry. He is exact . . . man is an economical being. . . ."[46]

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The sharp spikelike shadows framing the cross-shaped grave site are the most beautiful feature of this work. They are a testimony to the power of the spirit that recognizes such primary clarifications as something necessary and is able to bring them about; this must doubtless have moved LC deeply.

Strangely enough, a second small sketch in figure 147, the landscape sketch (L), is directly connected to the two crannog drawings (B) and (C). However, this connection is not of a theoretical nature but is related to historical research, and it has to do with the decisive steps of a non-Mediterranean, north European archaeology, as will become apparent later. A rather harmless picture: a water expanse set against some hills in the background. In front are half a dozen piles sticking out of the ground barely overlapped by the water. A typical Swiss shoreline? To this poignant lake view we will return in the next chapter to discuss its relation to LC's youth and his interests as a student. Like his sketch of the relief from the reign of Darius (N), it does not fall into our grouping according to building type; hence we leave these out of consideration.

However, the drawing of the ruins (K) is to be assigned to the small group of round and vaulted buildings. It is a masterpiece of entrapment because it awakens two opposite associations. It conjures up a segment of the vaulting belonging most likely to a Roman bath, yet it evokes an ultramodern impression even as late as 1928, for the vault is not round but swings extravagantly into a hyperbolic shape. Evidently it is a reference to the hangar of Freyssinet and Limousin for the Orly airport, which LC illustrated twice in *Vers une architecture* five years earlier (figure 157). A classical archaeologist might certainly feel right in hotly rejecting such a coupling or conflation and unmask it as a dubious trick. And it certainly is a fact that, while hyperbolas occurred in the baroque, they were not part of the vocabulary of Roman architecture. Yet to tolerate LC's double message about the future we need here a sense of humor, or better still a sense of joy in the artist's entitlement to develop anew old dormant notions. This entitlement many an art theorist is inclined to grant as generously as can be to early generations of architects, but not at all to modern generations.

The last drawing left to discuss is the square "structure on the waterside" (R) whose flat roof can be reached by a ladder and used as an observation deck. Neither a relic with a prehistoric aura nor a form with a future potential, what is this feeble conclusion of the series of sketches invoking earliest

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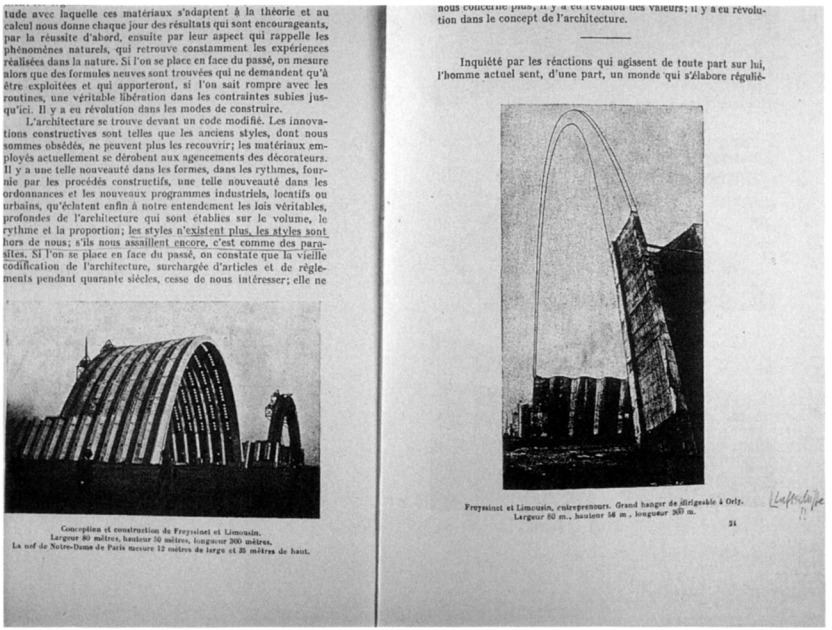
157
Can LC compare the airplane hangar by Freyssinet and Limousin at Orly with an ancient Roman bath building?


tude avec laquelle ces matériaux s'adaptent à la théorie et au calcul nous donne chaque jour des résultats qui sont encourageants, par la réussite d'abord, ensuite par leur aspect qui rappelle les phénomènes naturels, qui retrouve constamment les expériences réalisées dans la nature. Si l'on se place en face du passé, on mesure alors que des formules neuves sont trouvées qui ne demandent qu'à être exploitées et qui apporteront, si l'on sait rompre avec les routines, une véritable libération dans les contraintes subies jusqu'ici. Il y a eu révolution dans les modes de construire.

L'architecture se trouve devant un code modifié. Les innovations constructives sont telles que les anciens styles, dont nous sommes obsédés, ne peuvent plus les recouvrir; les matériaux employés actuellement se dérobent aux agencements des décorateurs. Il y a une telle nouveauté dans les formes, dans les rythmes, fournie par les procédés constructifs, une telle nouveauté dans les ordonnances et les nouveaux programmes industriels, locatifs ou urbains, qu'éclatent enfin à notre entendement les lois véritables, profondes de l'architecture qui sont établies sur le volume, le rythme et la proportion; les styles n'existent plus, les styles sont hors de nous; s'ils nous assaillent encore, c'est comme des parasites. Si l'on se place en face du passé, on constate que la vieille codification de l'architecture, surchargée d'articles et de règlements pendant quarante siècles, cesse de nous intéresser; elle ne

Conception et construction de Freyssinet et Limousin.
Largeur 80 mètres, hauteur 50 mètres, longueur 300 mètres.
La nef de Notre-Dame de Paris mesure 12 mètres de large et 35 mètres de haut.

nous concerne plus; il y a eu révolution des valeurs; il y a eu révolution dans le concept de l'architecture.

Inquiété par les réactions qui agissent de toute part sur lui, l'homme actuel sent, d'une part, un monde qui s'élabore régulié-

Freyssinet et Limousin, entrepreneurs. Grand hangar de dirigeable à Orly.
Largeur 80 m., hauteur 56 m., longueur 300 m.

origins supposed to be? LC's explanation is a short story: "Far out in Brittany, one day an Italian mason appeared who was acquainted with reinforced concrete. In the village where the costumes and the austere conduct of the populace led one to believe one was living still in Cromwell's times, on the beach a new fact arises, a new object comes into being, incomparably more effective and more resistant, a soul-stirring revolution."[47] (*En plein pays breton est arrivé un jour un maçon italien qui connaissait le ciment armé. Au bord de la mer, dans le village où les costumes et l'attitude hiératique des gens font croire encore à Cromwell, un fait nouveau surgit, un objet neuf s'installe, beaucoup plus efficace, plus résistant, saisissante révolution.*) Obviously, LC does not let this last opportunity slip by to illustrate the new building material from which he unerringly expects a revolutionary miracle in at least one example of its "naive" early history.

Our *regrouping according to building types* (figure 150) shows that LC gives a decisive priority to the box/cube. He devotes seven sketches to it, whereas the tent, the flat gable, and the round building are shown only in two examples each. The result is not surprising, although the regrouping

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makes it clearer what sort of mixtures the young master imposes on us or teases our imagination with. On the one hand he surprises by his extensive knowledge and great tolerance, on the other hand he obstinately insists on the type he has chosen once and for all as his favorite. While some examples in the box/cube group that first appeared strange or accidental might have become more cogent and clearer by now, the crannog drawings (B) and (C) remain unexplained and puzzling. We now turn to these two drawings and in conclusion repeat the questions we posed in the discussion of *LC's axiom* about the priority of geometry in human imagination, since it seems marvelously confirmed by Darius's grave site in the rocks, and since LC declared it, with ever increasing emphasis, the precondition for any comprehension of the modern. Our questions were: whoever heard that the earliest human shelters, supposed to represent the most elementary survival strategy, could afford, of all things, the luxury of a nearly pure form of a cube and a flat roof cover? And: Do we sit before the two crannog drawings lured by the bold imagination of the young master, who is incapable of defending it with anything like a solid argument, or is it the case that in the end he has sources to fall back on?

We first should have a notion of the meaning of the word "crannog," and Switzerland paradoxically proves a favorable place to look for it. In the 1860s (one generation before LC's birth) there occurred a kind of *parallel action between Ireland and Switzerland in matters of archaeology,* and it was followed with great attention by the people of both countries. The professionals celebrated enthusiastically the almost simultaneous *double discovery of the Swiss pile-works and the Irish crannogs* as inspiring examples of mutual enlightenment.

For the interested in French-speaking Switzerland—which certainly had as great cause for this interest as did German-speaking Switzerland—the most popular publication on the new and at the same time old event was *Habitations lacustres* (Lake Pile Dwellings) by Frédéric Troyon (Lausanne, 1860; figure 158). This sizable volume of 495 pages and 17 tables of illustrations is the first attempt to provide a worldwide survey of the culture that lived at the water's edge and over the water from earliest historic times down to the present. Troyon, curator of monuments of antiquity at the museum of the canton of Vaud in Lausanne, adhered to the new concept of "antiquity." For

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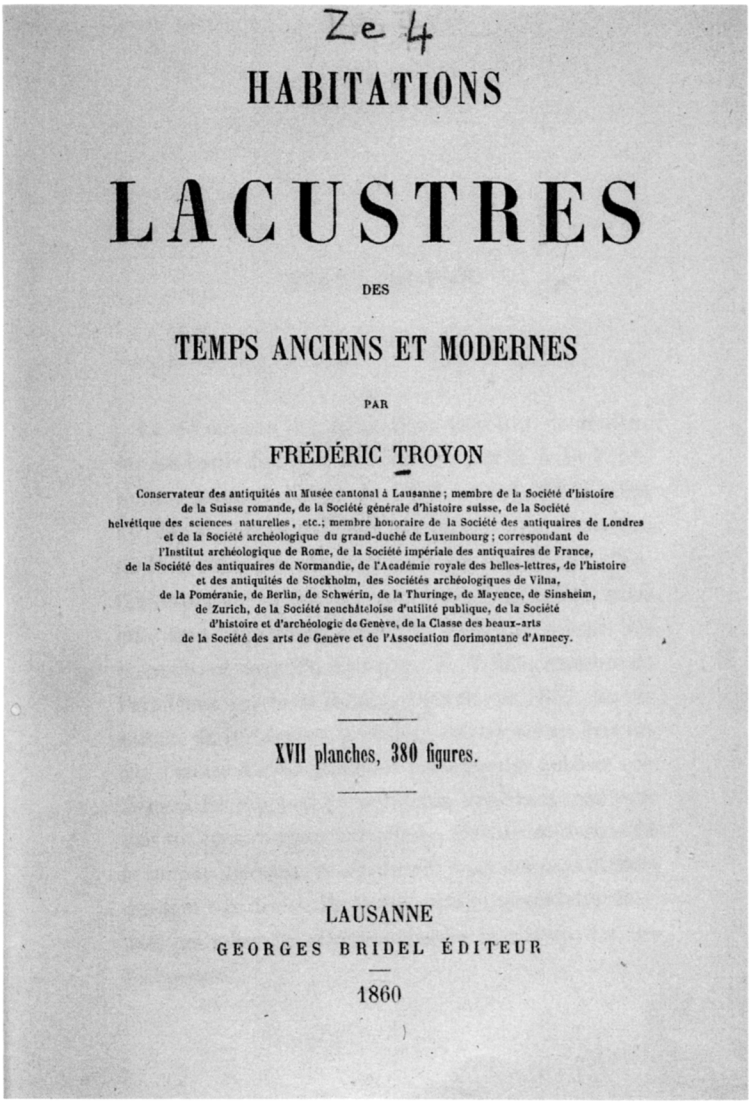
Title page of Frédéric Troyon's work on lake dwellings (Lausanne, 1860).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HABITATIONS

LACUSTRES

DES

TEMPS ANCIENS ET MODERNES

PAR

FRÉDÉRIC TROYON

Conservateur des antiquités au Musée cantonal à Lausanne ; membre de la Société d'histoire de la Suisse romande, de la Société générale d'histoire suisse, de la Société helvétique des sciences naturelles, etc.; membre honoraire de la Société des antiquaires de Londres et de la Société archéologique du grand-duché de Luxembourg ; correspondant de l'Institut archéologique de Rome, de la Société impériale des antiquaires de France, de la Société des antiquaires de Normandie, de l'Académie royale des belles-lettres, de l'histoire et des antiquités de Stockholm, des Sociétés archéologiques de Vilna, de la Poméranie, de Berlin, de Schwérin, de la Thuringe, de Mayence, de Sinsheim, de Zurich, de la Société neuchâteloise d'utilité publique, de la Société d'histoire et d'archéologie de Genève, de la Classe des beaux-arts de la Société des arts de Genève et de l'Association florimontane d'Annecy.

XVII planches, 380 figures.

LAUSANNE

GEORGES BRIDEL ÉDITEUR

1860

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many centuries it had been self-evident that this concept applied to monuments and documents from the south of Europe, from the Mediterranean culture, and from the Near East: Egypt, Mesopotamia, Greece, and Rome had constituted antiquity. Only in the eighteenth century, with the Enlightenment, was prehistory (the reservoir of findings without written documents) placed ahead of the early history explored so far, and an interest in the northern past awakened in northern Europe. The excitement about the discovery of a "mute" historic period in one's own country increased all the more in the nineteenth century, which can, without exaggerating, be called the *century of the archaeology of the north.*

Troyon's work is to be viewed in this framework. In the first lines of his preface he mentions the two researchers to whom he is most indebted. One of them is Dr. Ferdinand Keller of Zurich, who in the winter of 1853–1854 discovered constructions on pile-work in the village of Meilen on the Lake of Zurich and interpreted them as dwellings "built above the water surface" (*constructions sur pilotis, élevées au-dessus de la surface des eaux*),[48] or lake dwellings. The other is Sir William Robert Willis Wilde (1815–1870), member of the Royal Academy of Dublin, who "in 1857 published results of similar explorations which had been undertaken in Ireland since 1836" (*M. Wilde . . . à publié, en 1857, les résultats de recherches pareilles, entreprises en Irlande dès l'année 1836*).[49] The structures under discussion were the crannogs. Troyon's transcript reads as follows: "The Irish called crannogs little islands made habitable by wood constructions" (*Les Irlandais donnent le nom de crannoge à des îlots rendus habitables par des constructions en bois*).[50] For Troyon the result "removes all doubt that the Swiss also had their Stone Age, just as the countries of the North," for the finds of weapons, jewelry, and tools in graves or on the bottom of the sea proved that they constitute "products of a kind of analogous culture" (. . . *que la Suisse n'ait eu son âge de la pierre, de même que les pays du Nord . . . produits d'un genre de culture analogue*).[51]

The person who first brought William Wilde and his research to public attention in Switzerland was Keller. In his second report on "Die keltischen Pfahlbauten in den Schweizerseen" (The Celtic Lake Dwellings in the Swiss Lakes), which Keller published in *Mittheilungen der Antiquarischen Gesellschaft in Zürich* (Reports of the Zurich Society for Antiquities) in 1858, he also described findings outside Switzerland, namely in Germany, Savoy, and Ireland. Under the heading "Crannogs, Wooden Islands in Ireland," states:

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In 1855, when I wrote the first report on the lake-dwelling settlements in the Lake of Zurich and the Lake of Bienne, I had no idea that several years earlier similar constructions on the islands formed by the course of the River Shannon had been discovered and described. *Mr. Wilde,* Member of the Royal Irish Academy in Dublin, to whom we owe the knowledge of these strange structures, discovered the first palisade island in 1836 and described their presumable function in the same year in the April issue of the *Proceedings of the Royal Irish Academy,* p. 220. Since the comparison of similar water settlements of the former Celtic region, though situated so far apart, are of great interest for us, we consider it necessary to include here in their main features the descriptions of the Irish crannogs which Mr. Wilde published in 1857 in Dublin in the *Catalogue of the Antiquities of Stone, Earthen and Vegetable Materials in the Museum of the Royal Irish Academy.*

Whether the name crannog, "wooden island," is derived from the wood used to enlarge and fortify the island, or from the wooden huts built on it or on the mainland, remains uncertain. The crannogs are to be found mostly at the confluence of several small lakes where little islands of clay and marl emerge above the surface and remain dry in summer but stay submerged under water in winter. These islands, party created by nature, were enlarged by means of oak trunks and a framework of piles of the same timber, and in some cases were even raised by stone embankments and fortified. They could be reached by an artificial dam or by a walkway supported by a double row of piles and crossbeams, but for the most part only by a dugout of oak; such boats have been found close to most crannogs. The islands, whose shape always approximates a circle with a diameter of 60–200 feet, are surrounded by a single or a double (rarely by a triple) row of piles, 4–9 inches thick, and stuck with their pointed ends deep in the ground. Occasionally this pile-work was supported and fortified by walls or moles of piled-up stones. In some cases the island's palisade is man-made and consists of horizontal beams laid in the mud to which are pegged vertical posts at whose top are attached horizontal beams again by pegs. The piles seem originally to have been interlaced with branches for their full height above water and to have formed thus a kind of dike or rampart. The surface of the enclosed space either consists of natural soil or, in most cases, is elevated over the highest water level by parallel or radially arranged short tree trunks, which are subsequently covered with a layer of densely packed pebble stones. On several wooden islands the inward side is divided into chambers by rows of posts provided with grooves for the matching boards to close them with. In these chambers have been found a lot of bones, often in piles several feet high. In the old crannogs one notices in the center a

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hearth consisting of several stone slabs, on the bigger crannogs even two or even three hearths located at different points; inside them one discovers artifacts of various kinds made of stone, bone, wood, bronze, and iron, namely, swords, knives, spear tips and javelins, daggers, horse harnesses, shears, chains, axes, earthenware, whetstones, and various kinds of jewelry, among them also coral. . . . Thus there are to be found combined here, exactly as on the Steinberg at Nidau, products of the Stone Age, the Bronze Age, and the Iron Age. The great age of these settlements as well as their long-continued use are revealed by the fact that in the crannogs are to be found stone utensils from the earliest times, that during their time of use they were gradually submerged by water and peat moors, that pile-work lies on top of pile-work, that during their excavations carboniferous layers emerged at different depths.

With regard to the crannogs' purpose, Mr. Wilde thinks that these completely isolated places have to be viewed as places of refuge or as fortifications of robbers, who brought cattle and other stolen goods there for safekeeping.[52]

Keller explains the sections and ground plans which he takes from Wilde's publication as follows. At the top (figure 159) is "the cross section of the wooden island in the lake of Ardakillin not far from Strokestown, in County Roscommon, which is constructed partly of stone and partly of oak piles. The topmost line indicates the highest water level, the second that in winter, the third that in summer. The uppermost layer consists of loose stones, which are surrounded by the wall partly resting on pile-work. Under that lies the original loam, peat, and stone surface of the island, on which in various places come to the surface ashes, bones, and pieces of wood. Among the different kinds of piles one notices also some slanted ones which surround the whole island."[53]

At the bottom (figure 160) Wilde shows the "ground plan of a wooden island. The outer palisades enclosed a circle of space 80 feet in diameter. The piles stand in part in a double or even in a triple row and here and there grouped together for some unknown reason. The central building (A) consists of 4-to-6-foot-long alder trunks placed parallel side by side; (B) designates the hearth, (C) a pile of hard clay, (D) the roots of a thick tree sticking in the peat soil whose top has been made into a kind of table. Next to that quite a lot of boar and deer bones lie around."[54]

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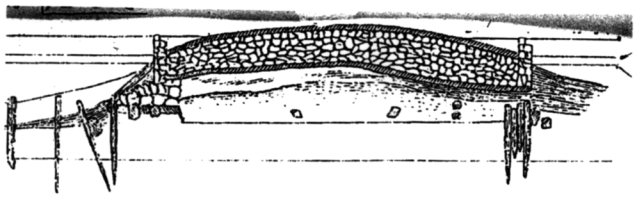
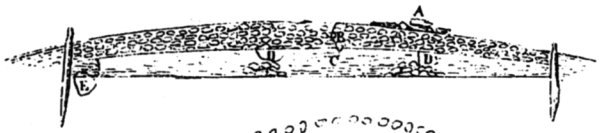
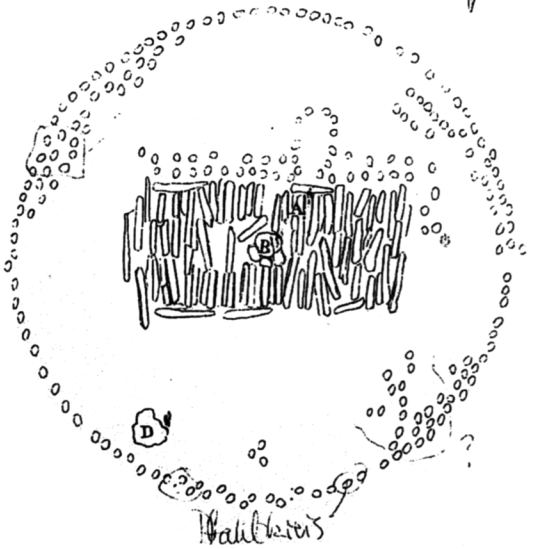
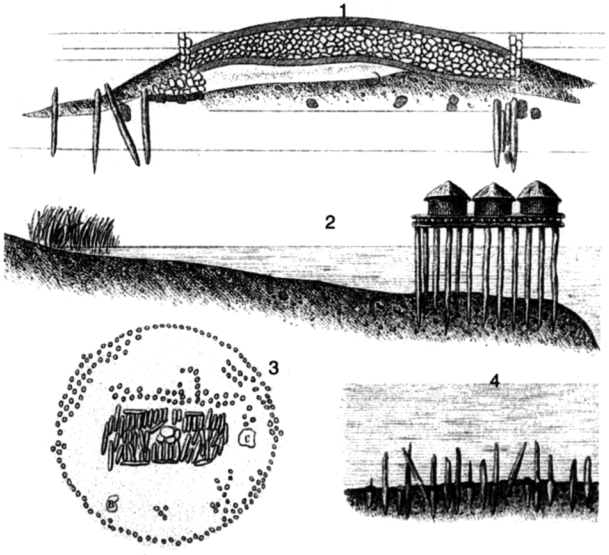






159–161
The discovery of lake dwellings in Switzerland and of crannogs in Ireland proves to be a *parallel action.* The findings of Irish archaeologist William R. W. Wilde (159, 160); Frédéric Troyon shows crannogs and Swiss pile-works in the same table (161).



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Keller points out that "the thought suggests itself that the Irish and the Swiss pile-works owe their origin to the same needs."[55] However, these needs are met in different kinds of ways by different kinds of constructions. In Ireland, hummocky shallows are raised by stone pillows, then a groundwork of timber laid crosswise is provided for the dwelling structure, whereas in Switzerland the piles are rammed into the shore to raise the dwellings above the ground or above water. At least this is the way Keller interprets the discovery of Meilen on the Lake of Zurich in 1855, and his interpretation was immediately received with wide agreement. The fact that in the report on Wilde's discoveries he expressly cites Steinberg at Nidau (Nidau is located on the Lake of Bienne) shows that he does not exclude the existence of island hillocks built into crannogs in Switzerland as well.

These two construction types, which one could call the basic types of cultures near or tied to water, are impressively set in contrast by Troyon in his *Habitations lacustres* (figure 161).[56] Drawings (1) and (3) show renderings after William Wilde; the other drawings show the second type as it had been discovered in many places on the Swiss lakes (4) and as Troyon may have imagined it (2).

As will become apparent, LC not only knew of but had studied thoroughly this confrontation of two types in Troyon's book. Keller was the first to publish for a Continental audience Wilde's description of crannogs through his detailed account; and in his third report on lake dwellings (1860) he underlined this, called "Mr. W. R. W. Wilde, M. R. I. A." his friend, and supplemented it with further details. Yet though Keller did not hesitate to draw on Pacific examples to reconstruct the findings at Meilen, he evidently desisted completely from reconstructing the huts on the crannogs. As we saw above, he spoke of chambers in which were found "a lot of [animal] bones," but he did not risk the slightest conjecture as to the huts' original shape.

But their discoverer, Sir William Robert Willis Wilde, Oscar Wilde's father, certainly did. In his *Catalogue of the Antiquities in the Museum of the Royal Irish Academy* (Dublin, 1857), he begins on page 220 to describe the crannogs familiar to us from Keller's excerpt. After the explanation of the cross section and the ground plan, he includes a long list of historically provable, dated mentions of crannogs not only through the Middle Ages but even as late as 1610. Then, seemingly responding to Keller's attempt to tie together

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the Irish and the Swiss structures, Wilde proceeds to do the same: "Shortly after the discovery of the Irish crannogs, structures very similar in character were observed in some of the lakes of Switzerland, and have been described by Professor Ferdinand Keller. . . ." [57]

After mentioning the crannog-like island at Nidau on the Lake of Bienne and three more at Hageneck and St. Peter's Island, Wilde turns to the description of the no less primeval-looking *log houses.* A first example of these had been discovered in 1833 in the moor region of Drumkellin, in County Donegal; a Captain W. Mudge measured and described this hut of rough-hewn logs in the magazine *Archeologia.* Wilde incorporates Captain Mudge's description: "As shown in the plan, the house consisted of a square structure 12 feet wide, and 9 feet high, formed of rough blocks and planks of oak timber, apparently split with wedges . . . the roof was flat and the house consisted of two compartments, one over the other, each 4 feet high . . . this appears to have been a very ancient dwelling, surrounded by a staked enclosure, portions of the gates of which were discovered." [58] To this description Wilde added: "Whether this wooden house is similar in character to those which formerly existed on the stockaded islands and may have given them their names of crannogs, is now a matter of conjecture." [59]

What an astonishingly exact description! But, we should not forget, it refers to a log cabin in the moors and not to a hut on a crannog. W. M. Wylie, mentioned by Wilde, was the first to assert the plausible suggestion that moor huts and crannog huts need not necessarily differ. Wilde terms Wylie's conclusion that they were similar a "conjecture," but does not reject it outright.

For he is impressed by the fact that over the course of centuries the log cabin was covered by fourteen feet of peat, and in addition contained primitive artifacts (stone arrowheads); therefore he concludes that it is of "immense antiquity." The Irish Academy was obviously aware that the log cabin discovered in 1833 could occupy a notable place in the still very young archaeology of the northern countries, and agreed to set up a model of it on the first floor of the museum donated by Colonel Larcom.[60]

The recently formulated *parallel action* between Ireland and Switzerland seemed to fascinate Wilde at least as much as it did Ferdinand Keller. Therefore he did not pass up the chance to point out that the log cabin re-

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sembles the Swiss chalet.[61] Today this can be understood only if the accepted concept of "chalet" is replaced by that of a cabin made of logs, but even then a flat roof is hard to imagine in the alpine regions.

The *Irish log cabin as a two-story dwelling box* has every chance of playing a role in the investigation of the myth of the primitive hut that has developed in architectural history over the last twenty years. Perhaps it can even change its course a bit, because, as far as I can see, until now it has not been taken into consideration by specialists in that field. The initial impetus for an exploration of the primitive hut was given by Wolfgang Herrmann in 1962 with his book on Abbé Laugier; one decade later, Joseph Rykwert's extensive survey *On Adam's House in Paradise* made the new topic of investigation widely popular.[62] Seventy-eight years passed between Laugier's theory on the primitive hut with the now famous etching by Ch. Eisen (figure 162), published in 1755, and the finding of the "real" Irish primitive hut in the moors of Drumkellin in 1833. This time span marks the transition from a *speculative* theory on the first human shelter to an *archaeologically conceived exploration*—digging, uncovering, and measuring objects suggesting the primitive house—that got under way and began to flourish in the course of the nineteenth century in northern Europe.

However, how could this extraordinary exchange of ideas between Wilde in Dublin and Keller in Zurich have come to LC's attention? This question necessarily leads to the next: How could the part of the description with the details and measurements of the dwelling box of Drumkellin, which Keller did not translate and which therefore was available *only* in Wilde's catalogue in English, become accessible to LC? LC did in fact have a decent command of German; he understood it and spoke it fluently enough, thanks especially to the lessons Auguste Klipstein gave him in Munich in 1910 before their trip to the Orient. As Paul V. Turner has shown, LC did own a few English books but preferred their French translations.[63] How is he supposed to have come across such a rare volume as Wilde's catalogue published in Dublin?

All these speculations prove unnecessary because Frédéric Troyon, the Vaudois scientist, turns out to have been a painstaking and dependable mediator of Irish sources through his *Habitations lacustres.* In his way he was even more thorough than Keller (who by the way was critical of Troyon's *Habita-*

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162
The theory of the primitive hut by Abbé Laugier, 1755.

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tions), and he tried more consistently than Keller to make the whole profile of Wilde's information accessible to the public at large. Let us see how he incorporates the decisive passage by Wilde cited above. In his chapter on the "Forms and Dimensions of the Huts" Troyon wrote:

The *circular* form seems to have predominated in the huts of antiquity, which, by the way, is also true of many primitive peoples today, but rectangular constructions were no less popular in the earliest times in Europe, and it is probable that both types of huts were found together on the same [pile-work] platform. The rectangular hut has been used in several places in the north since earliest times. One was discovered at some distance from Stockholm during the digging of the canal to Göteborg. Another hut was found in *Ireland* under *14 feet of peat* in the moors of *Drumkellin* in County *Donegal.* According to the report of *Captain Mudge* its *measurements* were: *12 feet square with a height of 9 feet, divided in two stories which were 4 feet high each.* The posts of the wooden structure stood upon horizontally laid logs, *the roof was flat,* and the compartments were bounded by rough planks, apparently split with wedges. A stone axe, found in the hut, and a wooden sword sufficiently prove the great age of these constructions, which Mr. Wylie views as the first dwelling huts of the crannogs in Ireland, wooden islands on which one finds traces of separate compartments subdivided by rows of piles backed up with wooden slabs or planks.

Whatever their individual shape, the huts were crowded closely together on the platforms, which were so hard to construct that every little corner had to be used. This is doubtless the reason why so little space was given to the connecting halls and why only the necessary minimum was reserved for storage space.[64]

(*Si la forme* circulaire *des demeures paraît avoir prédominé dans l'antiquité, comme c'est encore le cas chez beaucoup de populations sauvages, les constructions carrées n'en ont pas moins été connues fort anciennement en Europe, et il se peut que ces deux genres de cabane se soient souvent trouvés réunis sur la même esplanade. La hutte carrée a été usitée dès le premier âge sur plus d'un point du Nord. On en a découvert une, à quelque distance de Stockholm, en creusant le canal qui conduit a Gothembourg. Une autre, propre à* l'Irlande, *était sous* 14 pieds de tourbe, *dans le marais de* Drumkellin, *dans le comté de* Donegal. *D'après la description du* capitaine Mudge, *cette cabane mesurait* 12 pieds en careé, sur une hauteur de 9 pieds, divisée en 2 étages, hauts de 4 pieds chacun. *Les montants de la charpente avaient pour assise des troncs couchés horizontalement,* la toiture était plate, *et la cloison consistait en*

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grossières planches de chêne, évidemment fendues avec le coin. Une hache en pierre trouvée dans la hutte, et auprès de celle-ci, un morceau de sandale en cuir, une pointe de flèche en silex et une épée en bois prouvent assez la haute antiquité de cette construction, que M. Wylie suppose être le type des premières habitations des crannoges de l'Irlande, sur lesquels on trouve des traces de compartiments, séparés par des rangées de pieux revêtus de plateaux ou de planches.

Les cabanes, quelles que fussent leurs formes, devaient se grouper en assez grand nombre sur les esplanades, dont la construction était trop laborieuse pour ne pas en utiliser toute l'étendue. On ne réservait sans doute que des couloirs peu spacieux et que les places d'entrepôt les plus indispensables.)

We can assume with the greatest certainly that LC studied these one and a half pages by Troyon especially carefully because his two crannog drawings, which we reproduce here once more (figure 163), transpose the indicated features and their measurements into a visual representation of astonishing exactness:

- 12 feet square,
- 9 feet high,
- two stories, 4 feet high each,
- flat roof,
- huts closely crowded together on limited platforms,
- small storage space.

LC represented spatially almost this whole collection of data with the greatest exactitude. With the drawing's drastic perspective and strong shading, and especially with the figure of a barbarian with a thick beard, the scene acquires a vigorous lifelike modeling. The barbarian, who strongly suggests an alternative self-portrait of LC, leans his shoulder against the beam of the story separation and holds his hand to his forehead in meditation. But with regard to the width as indicated by Captain Mudge, LC allows himself a decisive deviation: the box is 9 feet high, but the width should be much greater. LC wanted instead something like a proudly upright wardrobe, a dignified first tower; the island was to look like a mini-San Gimignano, a strong walled town, though herded together so austerely and primitively.

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LC's prism of boxes thus correctly corresponds to Mudge's height measurement (figure 164, left), even though the story separation is pushed slightly upward, thus according the leaning meditative or watchful barbarian a height of 6 feet (after measuring the whole and making allowance for perspective distortions). But as soon as Mudge's width and depth indication of 12 feet is brought into the picture (figure 164, right), the proud little tower changes into a much less impressive, drawerlike structure. These are the figures Captain Mudge noted down, yet one may suggest that LC's correction is well justified.

Certainly one is likely to ask how these rather large openings of the dwelling box would work in bad weather. The next thing would be to hang hides in front and tighten them. LC also imagines circular openings and indicates them in his drawing of the crannog island (figure 163, right) in the drawing's only horizontal parallelepiped, visible behind the access bridge. Yet his two crannog drawings provide above all a further insight that other draftsmen of primitive huts have not made as clear: that in the first buildings the furniture and the house cannot be clearly separated. LC's log house is more wardrobe than house, yet it achieves the dignity that LC was able to recognize in the fishermen's huts of Arcachon as well.

Anyone who still recalls LC's preoccupation with the *cellule,* the spatial cell and its addition forming the *maison standardisée* of 1923 (see chapter 3 above, especially figure 21), will have no difficulty seeing the Irish dwelling box as a barbarian version of a double cell. There certainly is a connection between the two. I attempt to make this clear in figure 165 by taking the fourth example from figure 21 (which is taken from *Oeuvre complète,* vol. I, p. 69) and drawing its frontal prism (a), then drawing the same from the third example (b), and finally taking the fourth example as a whole but turning it 90 degrees (c). Thereby the barbarian and the Platonic aspects are set next to each other. What began in prehistory as a box can be imagined in antiquity as a Platonic pure spatial cell. Or is this wrong, and especially wrong in light of LC's chronology of origins? For LC is a sworn believer in the axiom we discussed above, *l'homme ne saurait agir sans géométrie* (man cannot act at all without geometry), and consequently never lacks geometric conceptions. Since for LC there are no primitive tools and kinds of constructions, he would maintain that the gigantic savage, his alter ego, can imagine a pure

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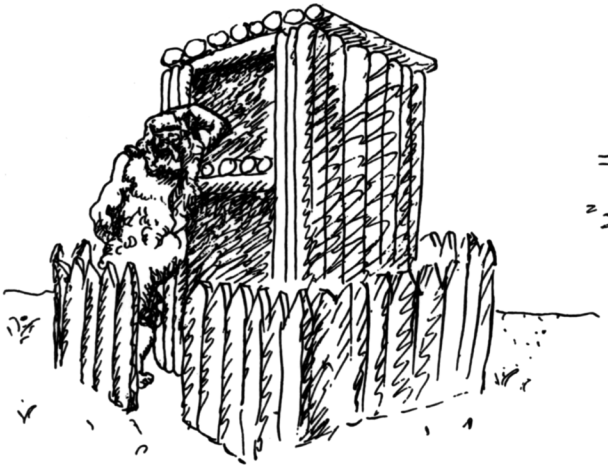
163–165
LC's drawings of the *huttes des crannoges d'Irlande* (163). Whence comes the permission for the proportions and the flat roof (164)? The crannog hut as *cellule* (165).



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Huttes des Crannoges d'Irlande (Musée Mondial)

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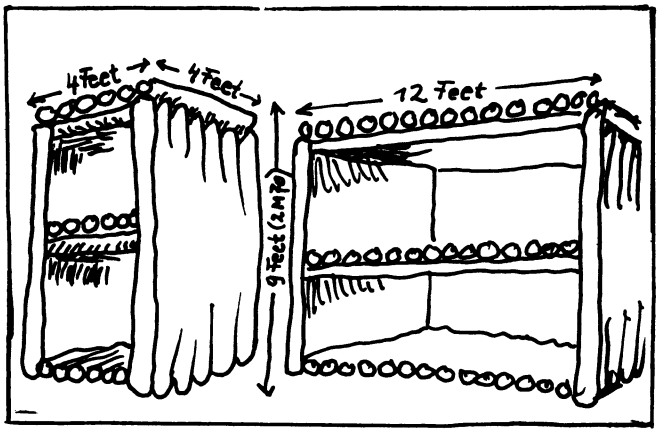

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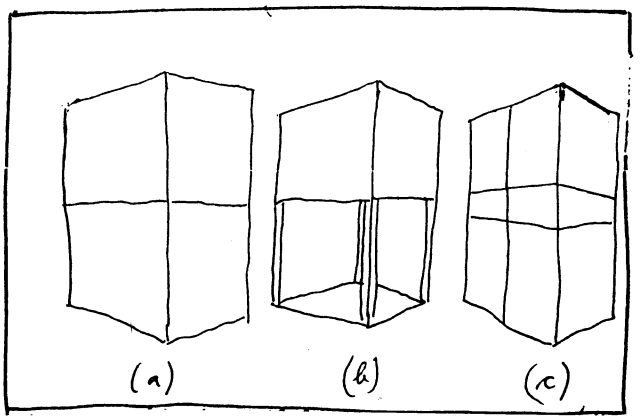

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spatial cell just as many thousand years later a Greek or a Roman can imagine it, but that the pure conception was inadequately realized in architectural terms due to the primitive tools of the time.

But let us return to Wilde's primal proportion that LC followed so exactly, with the exception of the width measurement. One can ask whether he had not tried out Wilde's indication of 9 by 12 feet after all, specifically in the only transverse parallelepiped of the crannog village, which, like a boat, is equipped with circular windows. This block, turning its corner to us, is sketched very summarily but obviously approximates the proportions of 9 by 12 feet, and by its width it emphasizes the vertical dominance of the rest of the buildings. Thereby too the virile impression of the whole is firmly established. This need not astonish us because LC's temperament, at least until the middle of his life, was marked by strongly virile features.

Because LC's note on the drawing mentions not only the key words "crannogs" and "Ireland" but also (in parentheses) the Musée Mondial, one might at first think that the two drawings belong to the League of Nations years. The Musée Mondial occupied LC first in connection with the Mundaneum, which Paul Ortlet, a pacifist, wanted to erect in the vicinity of Geneva and for which he sought the architect's collaboration from April 1928 on.

However, nothing would be more audacious than to conclude that the two drawings are to be dated from 1928. It may be that LC drew them again for publication in that year (and there are signs of haste and a certain negligence, especially in the rendering of the window openings in the parallelepiped block). Certainly he drew them after older sketches that he reused. For the architect of the League of Nations years, intensely courted and strenuously opposed, hardly had the leisure to occupy himself with the details of Troyon's book, which by this time had become rather antiquated in any case.

It seems much more plausible to me that LC read Troyon's book in his student days, when he and his friends viewed themselves as *hommes des bois* and were likely to have discussed it together. A man like L'Eplattenier, their teacher, who was convinced of the eminent significance of that region and its history, could not close his eyes to the great new discovery of the *earliest history* of that same region. And only after the engaged regionalist young teachers around him—Georges Aubert, Léon Perrin, and LC—let them-

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selves be lured into professional studies about Swiss lake dwellings could they become acquainted with the *parallel action* of the crannog archaeologists in Ireland.

LC's two crannog drawings, seemingly motivated only by regionalism, belong from today's perspective to a wide and fundamental context. They belong to that illustrious series of *representations of the first hut* that, starting with Vitruvius, play an enormous role in the Italian and the northern Renaissance. Yet the theme was present also in the baroque (Claude Perrault) and in the Enlightenment and classicism (Abbé Laugier). In his book on Laugier Wolfgang Herrmann outlined a catalogue of architectonic concepts of earliest origins and showed why they are of great interest. We may without hesitation include LC's two crannog drawings in this company. They have their place next to the Caribbean hut of Gottfried Semper and the Indian hut of Viollet-le-Duc. The honor roll of first conceptions of human shelter, first explored by Herrmann and followed by Rykwert, thus gets a new importance. The simplistic image of LC as mere apostle of the future has until now made historians blind to the fact that, as a young man, he was of immense significance in matters of historical beginnings.

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PART IV The Swiss Lake-Dwelling Fever

If one thinks of a young artist in the Swiss Jura around 1907, grown up right on the French border and destined by his master to become an architect, one is inclined to ask why Ireland and its prehistoric past, of all things, should interest him. And why should it interest him persistently, so much so that while studying Troyon's *Habitations lacustres* he does not stop until, on pages 266–267 of this first compendium of worldwide lake-dwelling settlements, he comes across the exact measurements of a two-story Irish dwelling box, which he turns into drawings and finally also publishes them?

The answer is clear: without the decisive interest at that time in the newly discovered prehistory of his own region, he could not have come across the Irish crannogs at all. Moreover, his fascination with the architectural aspects of these early Swiss settlements, designed to house daily life on stilts above the water surface, must clearly have gone beyond conventional curiosity, because only the closely initiated who inquired about the European dimension of prehistoric research were in position to know of the nearly simultaneous parallel action in Ireland. In short, for a European at that time, acquaintance with crannog research was a function of one's expertise in the history of lake-dwelling research.

This expertise LC clearly manifests, but he does so in the style of an initiate who gives only signals but no commentary. As frequently is the case with him in other circumstances, his signals are visual, whose meaning and reason the viewer-reader has to concatenate. LC's text does not directly refer to the illustrations, it flows on under them or high above them. Only the captions occasionally offer small hints.

The two crannog drawings in *Une maison—un palais* were such a veiled message. However, three years earlier, in 1925, in the book *Urbanisme* (Urban Architecture) there are two illustrations that catch the reader by sur-

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prise in the introductory chapter, turning him into a kind of wanderer in a forest who now and again comes across wood shavings that form some kind of tracks which he cannot quite decipher. The caption of the first (figure 166) tells us that we are looking at the plan of the stages of settlement of the city Turicum, but how is the French reader to know which city was originally called that by the Romans? Only the translator of the German edition realizes this and adds to the caption: "The Lake-dwelling City (Turicum, the present Zurich)." The Roman city center on the left and right of the river Limmat is rendered black, the medieval city dark gray, today's conglomeration light gray. But this is only the sequence of LC's message. Its point is *the lake-dwelling city that was situated in the lake's basin, at the outflow of the river.* The reader is helped a bit by an arrow pointing to the twelve black blocks (in three rows of four) in the water, which in LC's opinion formed the original Turicum. Why Zurich, and not Neuchâtel or Geneva? This question proves, as will become evident, how well informed LC was in Swiss early history, and in chapter 18 we will see that he acquired this knowledge not when he was an aspiring architect and teacher, but to a large extent in his boyhood, in the lowest grades in elementary school.

The second illustration, on the facing page (figure 167), also has no connection to the text, but it starts a kind of dialogue with the primeval Turicum. What is at stake, at least as our line of inquiry here is concerned, is the dialogue between LC's two basic propositions. What has driven him is shown compressed in these two illustrations with a conciseness not to be surpassed.

In the Turicum picture we are indirectly told that in the beginning people lived in settlements above the water. The three primitive huts on the opposite page are stacked to indicate three developmental stages and are accompanied by corresponding utensils. Take up this thesis and expand it: be it on water or on land, the original hut was raised on piles, and only in its second and third stages of development was it built on the ground.

Did LC always prefer the veiled message and the mute dialogue between two illustrations seemingly accidentally placed side by side, when he was not fully sure of his thesis? Of course, by 1925–1928 he knew for sure that his thesis on lake dwelling and the primitive hut pertained to a highly contested field and were very likely to remain so. But he himself is not an archaeologist risking his reputation with a premature hypothesis. He is an ar-

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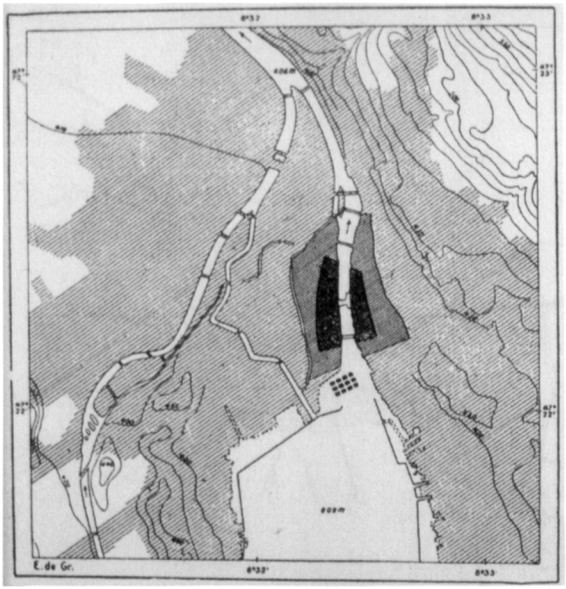
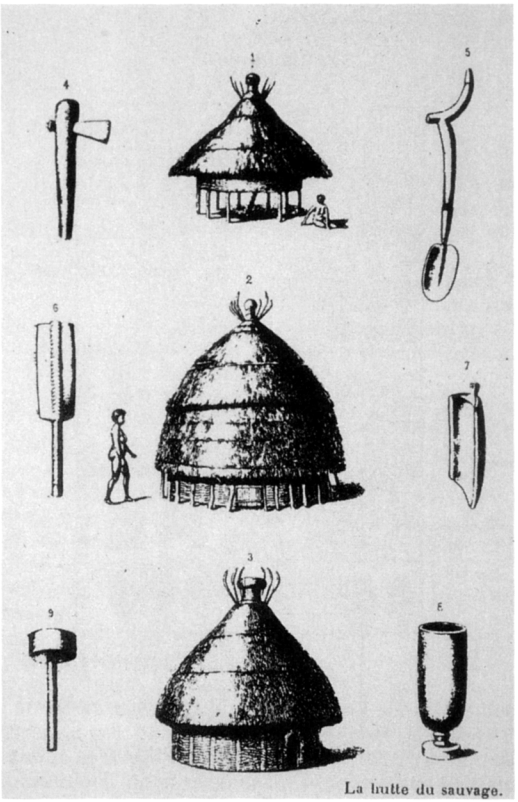


166, 167
LC, the great master of covering his tracks, gives two veiled messages. He shows the site of a lake-dwelling settlement in the plan of the later city of Turicum without telling this city's modern name—Zurich (166). He shows in a drawing a derivation theory starting from a primitive hut on stilts—without mentioning it in the text with a single word (167).



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chitect, and an artistically motivated one at that. Thus he needs to keep his secret, *because he has to protect it as the nurturing soil for his future designs.* The veiling and mystifying of his messages in such visual imagery as figures 166 and 167 I tend to view primarily as the self-protection of his artistic freedom.

Furthermore, we can assume that not only LC but also his fellow students and apprentices of L'Eplattenier were well versed in the lake-dwelling debate. This highly gifted teacher, himself a "man of the woods" who made his students "men of the woods" (as reported by LC in a quotation above), wanted to invigorate the arts of his region by regional traditions. Hence, for him as well as for his students it was a matter of consistency to take lively interest in the early history of their own region, which was then coming to light in new findings before their very eyes.

For us, this means that we have to ask first, what was happening in Swiss lake-dwelling research in general, and that means from its first discovery of 1854 on; that is, in the generations of LC's grandparents and parents. Hence, the grandchildren, the third generation to which LC belonged, as heirs to all that research were for the first time in position to have a comprehensive view of this whole set of problems. The innumerable local findings started to get pieced together and added up to a new picture of history. How this took place and what kinds of documents this third generation fit into the picture will be the subjects of the concluding chapters of this fourth part.

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C. W. Jeanneret, secretary of the Collège de La Chaux-de-Fonds, put together a book of texts for nine- to twelve-year-old students called *La patrie,* the fourth edition of which appeared in 1890 (figure 168).[1] In 1896, nine-year-old LC was handed this book as required reading. The discovery of lake dwellings is described under the title "Les habitations lacustres" as follows:

In 1854, Doctor Keller from Zurich noticed on the shore at Meilen some half-decayed *piles* and fragments of crude ceramic ware and stone axes that had been found buried in the sand where they had lain hidden for several thousands of years. From the presence of these findings he concluded that there once existed a settlement constructed *on top of pile-work.* As soon as the Zurich scientist had published this discovery, the shore areas of the rest of the Swiss Lakes were actively explored and traces of lake-dwelling settlements were discovered there as well; they were called *constructions lacustres* or *palafittes.*[2]

(*En 1854, M. le docteur Keller, de Zurich, observa à Meilen, au bord du lac, des* piquets *à demi décomposés, des fragments de poterie grossière, des haches de pierre que l'on venait de retirer de la plage où ils étaient enfoncés depuis plusieurs milliers d'années. Il conclut de la présence de ces vestiges à l'existence ancienne d'habitations construites* sur pilotis. *Dès que le savant zurichois ont signalé cette découverte, les rives de nos lacs suisses furent explorées, et l'on découvrit les traces d'habitations semblables; on les nomma* constructions lacustres *ou* palafittes.)

During the same year, Ferdinand Keller himself gave an account of the event. Probably no other text in the *Mittheilungen der Antiquarischen Gesellschaft in Zürich* ever created such a public stir and exploratory zeal and speculation as did his first report, entitled "Die keltischen Pfahlbauten in den Schweizerseen" (The Celtic Lake Dwellings in the Swiss Lakes).

In the second sentence of the preface Keller points out "the fact that, in the earliest epoch of dawning history, groups of families dwelt in huts which they had built not on dry land but on the shallow shoreline on top of *pile-work.*" He calls "this strange kind of settlement" also "pile-work habitations" or "dwellings on water." In the main part of the report the circumstances of

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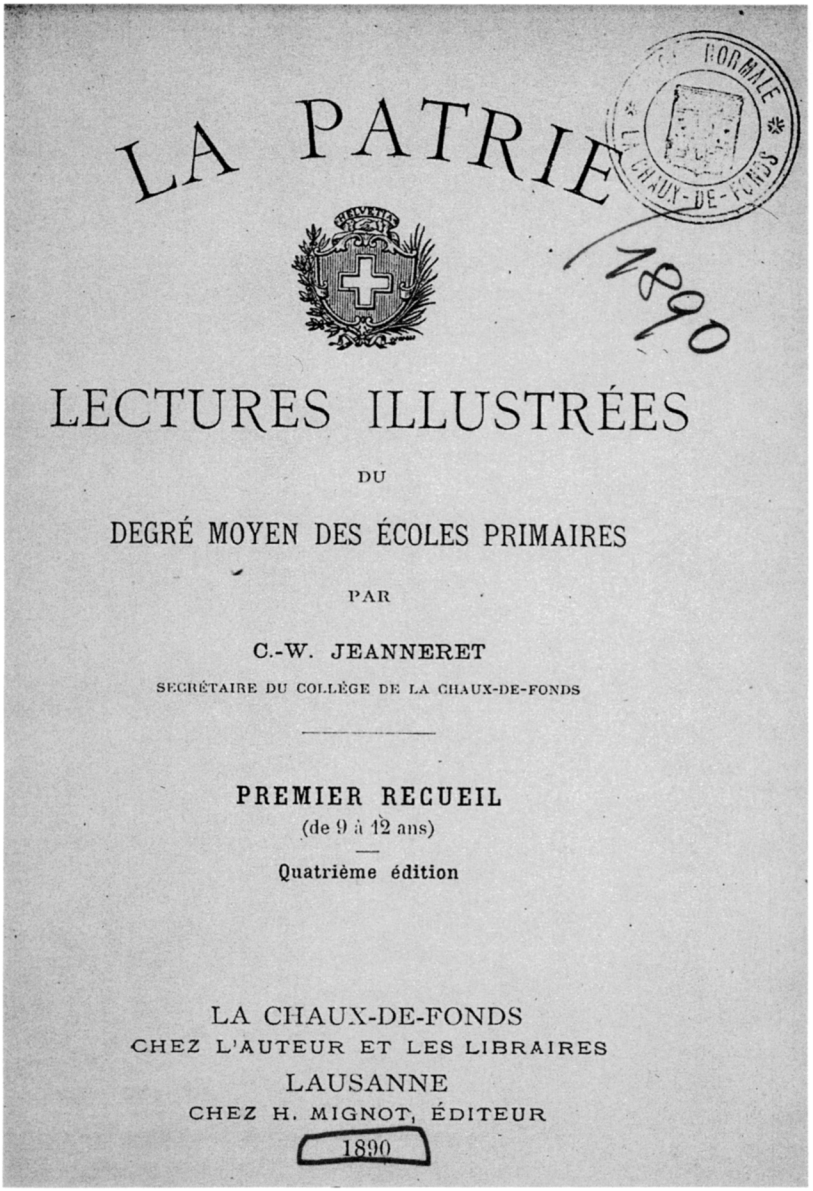
168
The title page of the elementary school textbook *La patrie,* which LC like all his schoolfellows encountered in class.



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the finding are described in detail: "As a result of the exceptional drought and the continuing wave of cold weather during the winter months of 1853 and 1854, an unusual event occurred in the Alpine regions: the rivers shrank within their banks and the water level of the lakes sank considerably." Thus, "on the shore of the Lake of Zurich came to light a settlement from the dawn of history that had been spotted in 1829 but could be examined more closely only recently."[3]

"In January 1854 Mr. Aeppli, a teacher in Obermeilen, . . . reported that in the vicinity of his house he picked up relics of human habitation on the lake's bottom left dry since the water had receded." During an attempt to profit from the low water level to build an embankment extending the available ground for gardening further into the lake, workers came across "the pointed tips of piles," and across "a great many antlers and a lot of various utensils." Keller explains these circumstances in some pictures. In his Table I (see figure 169) he shows a plan of the shore zone as well as a vertical section through the lakebed near the shore, including the location of the discovered piles, and a plan of the "placement of the piles." Like a Fata Morgana emerges a drawing at the bottom of the table, not mentioned in the text at all, that suddenly conjures up for the observer a full picture of such a primordial settlement in the water. Aha, that's how it must have been, that's how it was!

This small picture, only a strip in the lower third of Table I, is drawn in a dilettantish but careful manner, with a faulty perspective foreshortening of the roofs yet painstaking in its detail. Overnight it became the most popular picture in both the German and French parts of Switzerland and remained so for several decades, at least until World War I, and again during the 1930s. As we will see, it became the favorite illustration of calendars for farmers and tradespeople, yet for historians, archaeologists, and those interested in scientific exploration it was also an exciting icon that suddenly succeeded in unveiling the primordial aspect of Switzerland.

A representation that can be assigned neither to high art nor to folk art I would like to call an alternative image. Keller's drawing—based, as we shall see, on a representation of a Pacific island culture by the illustrator Sainson—floats in from the wild blue yonder and takes its place next to the world of Swiss vernacular images (from naive paintings of alpine herdsmen to popular lithographs) and next to the realm of Swiss high art aspirations, at

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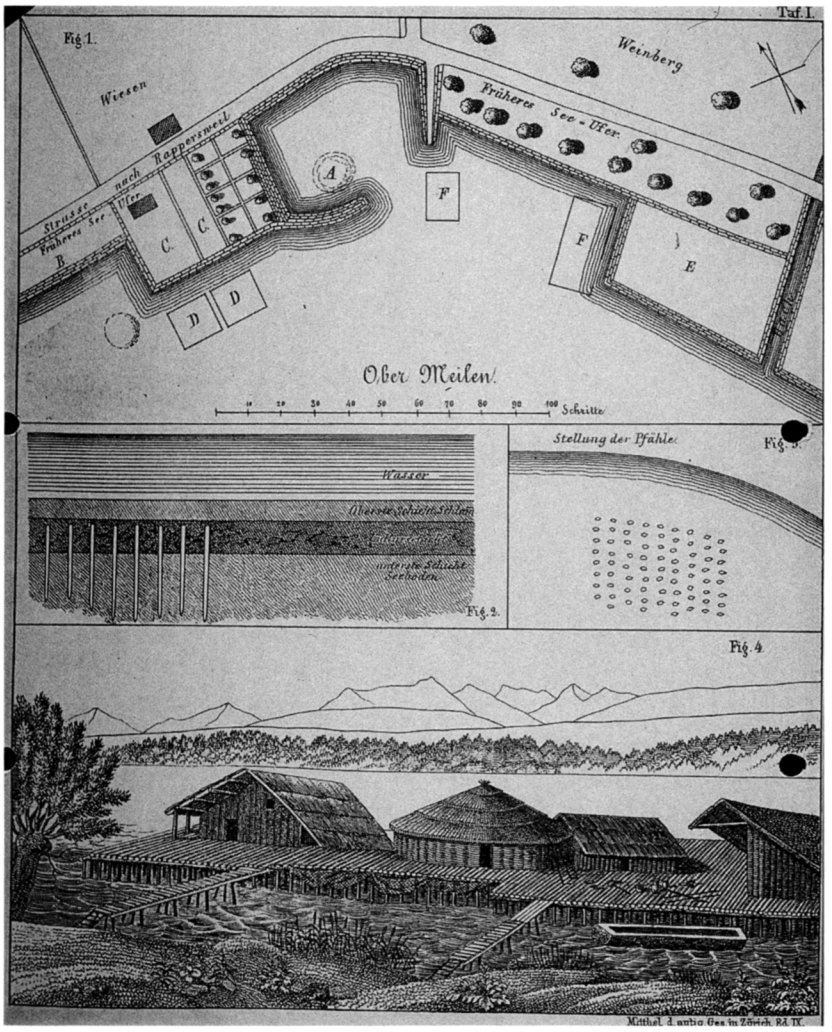

169
The discovery of the lake dwellings in the Lake of Zurich, 1854. Ferdinand Keller shows the findings (plan, section, location of the pilotis). At the bottom of this table he also shows a bold derivation thesis that produces a lot of consequences.

that time under the custody of Calame or Arnold Böcklin, Bocion or Anker, Valotton or Ferdinand Hodler. But for now let's leave this question open, because it will emerge that with Keller's proposition, a new kind of appropriating or substituting of pictures begins to infiltrate the world of high art in a downright subversive way.

Ferdinand Keller takes his time to let the silently introduced picture of the dwellings on water take effect, describing first in his unruffled, strong

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language all the characteristics of the piles and the objects that had been found, even to hazelnuts as "the only objects from the vegetable realm discovered there in great quantities. They were not recent ones deposited by the undertow, but were found in the earth layer of the earlier cultures. All the nuts had been cracked open."[4]

Only at the end does he return to the full picture drawn at the bottom of Table I and pose the question "whether earlier generations had lived here on land, on the dry though sandy and loamy ground of the shore, or whether one was allowed to assume that the pile-work had originally stood in the lake as it did now . . . and the huts . . . had been built at the height of the pile-work *as on a kind of a bridge.*"[5]

After weighing the evidence of the findings, Keller arrives "fully convinced" at the conclusion that the second view is the correct one. "These dwellings were similar to the fishermen's huts that were to be seen earlier on in the Swiss lakes and can be seen even now." Groups of pilings like those in Obermeilen obviously confirmed Keller in his conviction that these fishermen's huts were not set up as isolated single bridges but had formed a kind of village square above water. Therefore he writes: "Inside and next to the dwellings there was enough space for the kind of activities and enterprises serving people's daily needs as well as for the production of the utensils necessary for household affairs."[6]

Only with this passage is inserted the illuminating footnote in which Keller states *why he knows so exactly* how the village in the water at Obermeilen must have looked: "We have based the drawing . . . on the views of the village of Doreï reported by Dumont d'Urville." He mentions Dumont's big travel report, abbreviating the title but correctly citing "Histoire Vol. IV, pag. 607." The report in question is one that covers several trips to the Pacific region by Jules S. C. Dumont d'Urville on the corvette *Astrolabe* on a royal commission; its full title is *Voyage de la corvette Astrolabe exécuté par ordre du Roi pendant les années 1826–1827–1828–1829. Histoire du voyage* (1830–1833).[7]

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Dumont's travel reports were competently illustrated, especially when the excursion's draftsman Louis-Antoine de Sainson was doing the drawing. Sainson felicitously combined an artistic and compositional sensibility with a talent for exact observation. His representation of the construction of exotic buildings was so exact that Swiss explorers of lake dwelling needed 125 years to read them appropriately—something we will look at later.

But first the question arises on which of Sainson's pictures Keller based his own, and how he included the chosen motifs in his pictures. Of the four renderings by Sainson that include pile-work buildings, the two of settlements above permanent water (figures 170, 171) interested him. The two of settlements on land (figures 172, 173), which obviously have water underneath only temporarily, had no influence on his analogy for prehistoric Obermeilen. Of the two settlements on the water, he chose the one farthest out from the shore, which is moreover shown in better condition.

If we compare in detail Sainson's original (figure 170) with Keller's analogous construction (figure 169, bottom) we note, reading from left to right, that Keller freely combines the two saddle roofs at the outer left into a saddle roof of his own that is pulled down much lower; that he adds a circular building not found in any of Sainson's drawings; and finally, that he clearly includes the striking asymmetrical, high-rising saddle roof supported by the thinnest piles in the middle of Sainson's drawing, but does this negligently and pushes it to the extreme right edge of his picture. His negligence is evident first in his letting the daringly curved-out gable rise without thinking of the necessary supporting shafts, and second in the perspective foreshortening of this unusual roof shape, which appears slightly askew in Sainson and which Keller renders even more hazardous.

Keller diverges from the Pacific model first of all in the boat. He supplants the artfully framed ribbed boat in the middle of the picture by a dugout. Hans-Georg Bandi points out that such boats were still to be seen on Lake Aegeri in Keller's time and were expressly mentioned by Keller. Finally, the utensils visible on the platform above the dugout—earthenware, an axe, and spears—Bandi views as "objects whose existence he [Keller] knew from

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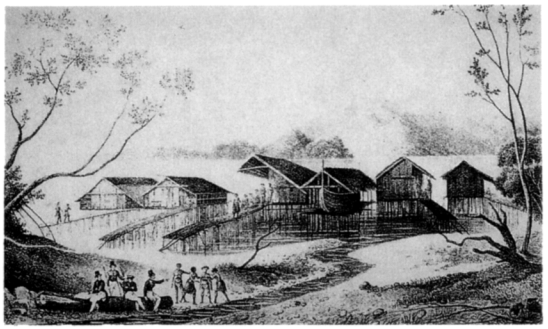

170

171

172

173

170–173
Keller views the Zurich findings by analogy with lake dwellings in the Pacific region, and he supports his view by the travel report by Jules Dumont d'Urville. Two views of settlements in the water (170, 171), and two of settlements on land (172, 173): illustrations by Sainson from Dumont's report.

the original findings or was allowed to surmise." In short, Keller's analogous picture is based not only on Sainson's data but also "on conditions still extant for contemporary fishermen and on archaeological findings."[8]

However, the surrounding landscape must not be forgotten. Keller supplanted Sainson's tropical vegetation on the shore and on the hills with fir forests and an alpine mountain chain. This change he executed without any commentary; that is, he did not consider the dependence of daily life above water on the climatic conditions, such as the difficulty of living through the winter snowbound on the pile-work platform. Neither did this problem seriously occupy or diminish the general enthusiasm for lake dwelling. Was this fascination a dream of good weather, of the tropics?

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A second question that we cannot pass over, in view of Keller's selection from the four renderings by Sainson, has to do with the evidently flexible transition from piles in water to piles on land in the Pacific examples. In Sainson's pictures the Pacific farmer appears to be an amphibious being who, thanks to his method of construction, is able to live on land as well as above water. Before these four pictures the fierce Swiss debate over *water or land settlement,* formulated in 1921 by Hans Reinerth and later made more pointed by Walter Staudacher, Oskar Paret, and Emil Vogt, director of the Swiss National Museum in Zurich, seems unnecessarily dogmatic. What is treated as a decisive question even today, requiring an either-or answer with regard to the past, in the Pacific cases appears clearly as a both-and proposition. Shouldn't we ask instead whether pile-work construction, as Reinerth says, was conceived from the very beginning for the "amphibious shore zone," and whether its enduring significance derives from its ability to do justice to both elements?[9]

Keller was aware that his transposition of the picture of the Doreï village to primeval Switzerland—what the schoolbook *La patrie* called the "analogy to Polynesia"—was a *retrograde ethnological inference.* In the middle of the nineteenth century this method of retrogressive inference was fascinating because it promised to supplant the *mythological approximation of first origins* with a *pragmatic approximation.* Keller's argument in favor of the inference reads as follows: "Since a similar state of culture always elicits . . . similar needs and consequently produces similar tools for life's various purposes, we can derive a clear idea of the state of civilization of the colony at Meilen most plausibly when we compare its products . . . with the descriptions we owe the travelers who have visited those peoples . . . situated outside . . . of the region of European civilization."[10]

To reinforce his analogy a second time, Keller cited another travel report, this time not in pictures but in words. Namely, he found the objects discovered in Meilen "surprisingly similar" to those reported on by Captain Cook in 1769 belonging to the aborigines of New Zealand, and he quoted Cook for more than one whole page.

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Jules S. C. Dumont d'Urville, leader of the *Astrolabe* expedition, described his visit to the two lake-dwelling villages of Doreï and Kouaouï and a third place on the little island of Mana-Sonari briefly, but he managed to pose questions such as modern inhabitants on land are apt to ask:

All [of these villages] are constructed on pile-work, none of them lies on land. Long piles with deep indentations serve as stairs to these dwellings and they are pulled into the interiors at night or when enemies appear. This preference of the Papuans to have their dwellings exclusively above water has not been explained convincingly yet. Some saw behind them a religious belief, others the simple wish to keep out of the reach of insects and bothersome ants ravaging the land, and still others saw as the main motive the providing of security against enemy attacks.[11]

(*Tous sont ainsi construits sur pilotis, aucun n'est en terre ferme. De long pieux fortement entaillés servent d'escaliers à ces demeures et sont retirés audedans au milieu de la nuit, comme à l'approche de l'ennemi. Cette affectation des Papous à n'avoir des demeures que sur l'eau n'a pas été bien expliquée. Les uns y ont vue une pensée religieuse; d'autres le simple désir de se tenir à l'abri d'insects et de fourmis importunes que ravagent le pays; d'autres enfin, un motif de sécurité contre les attaques de leurs adversaires.*)

Twenty years after Dumont, at the discovery of the lake dwellings of Obermeilen on the Lake of Zurich, Keller asked the same questions. The only difference was that he did not have a scene alive with the presence of an exotic population, as Dumont had, but faced the relics of a long-past culture. This led him to wonder whether at that early period the water level near the Alps was so low that the piles had actually stood on dry ground, though he concluded that they had stood above water.[12]

But what was the reason for these constructions? Of the three explanations offered by Dumont, Keller does not refer to the religious consideration; the second motive, protection from insects and ants, he mentions briefly ("wild animals' attacks"). The main argument for him remains enemy attacks, that is, "the same reason which impelled people to settle in high places, on

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heights difficult to scale, and to surround them with walls." Thus the dwelling above water is compared with a fortified peak, yet we are not permitted to define lake dwellings as "places of refuge inhabited only in times of duress." This was "impossible," Keller thinks, "because the number of the findings suggest that they were used for longer periods." To these defensive arguments he adds in the last sentence a mention of the advantages of living above water: "the easy fishing and boating."[13]

Although this sounds innocuous, Keller was fascinated deeply by living above water and the idea of community life above water. Therefore, for him the clear distinction between dwellings on land and dwellings above water was already extremely important in his first report, which we have cited exclusively. What we termed the "amphibious" quality of the four pile-work examples by Sainson—the supporting pile-work structures that can fulfill their function both above water and on land—was an alien notion to Keller, and it remained alien to the Swiss debate on lake dwelling, astonishingly enough, for many decades, until the anniversary issue dedicated to "125 Years of Lake-Dwelling Research" of the magazine *Archäologie der Schweiz* in 1979.

Keller's thesis in favor of water-bound pile-work was countered seventy-five years later by explorers such as Reinerth, Staudacher, and Paret, who proposed situating pile-work on land only. The person to fight most passionately for this position was Emil Vogt, whose publications around 1950 attacked the whole thesis of aquatic pile-work. For his support he always advanced evidence from specialists in the natural sciences, but strangely enough, as far as I can see, he never consulted an ethnologist who was well acquainted with the Pacific and had studied thoroughly the still-inhabited lake dwellings of New Guinea. In 1979 this connection was finally made. An interdisciplinary team under Stefanie Martin-Kilcher as editor, with researchers such as Hans-Georg Bandi, Michel Egloff, H. M. von Kaenel, Hans Trümpy, and others, not only relativized and noticeably softened Emil Vogt's extreme position, but also invited the comments of an ethnologist with specialized knowledge on the Papuan village, Christian Kaufmann. "Perhaps my observations, collected during my actual residence in the pile-work houses of New Guinea, might instigate others to occupy themselves with some practical questions concerning the interpretation of today's conditions."[14]

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Even if Kaufmann was doing a relatively simple thing by staying at an exotic lake dwelling, he thereby addressed a central issue and opened an alternative path in the lake-dwelling debate, that of first-hand experience. Previously, if I am not mistaken and have not overlooked an earlier ethnologist, for 125 years the *retrograde ethnological inference* had been the only approach, and a one-track one at that. By contrast, from his experience of living in New Guinea Kaufmann drew several conclusions.

- "Lake dwellings stand side by side with buildings directly on the ground" (figure 174). With this observation he brought up the amphibious flexibility that was lost in the Swiss debate, and especially in one case by Emil Vogt. This is all the more astonishing because the granary buildings in the Swiss mountainous canton of Valais show the same situation. There too the buildings on stilts (granaries) stand directly side by side with buildings built on firm ground.
- "On the Russian peninsula of Kamchatka in the northern Pacific the practice also existed of building structures on the ground side by side with structures raised on piles, both justified by the drastic change of the seasons [figure 175]. As recorded on an expedition by the Bernese draftsman Johann Wäber (John Webber), the eastern Siberian inhabitants of Kamchatka possessed winter dwellings in the form of community houses covered with earth and summer quarters in the form of small tentlike huts on light individual platforms" (p. 18).
- Since a pile work, especially when it stands periodically in the water, is likely to sway and "either leans to the side or collapses as a whole," it needs anchoring or lateral supports. Sainson had clearly indicated these in figure 171, in the building in the middle of the picture.
- The cleverest stabilization method consists of separating throughout two supporting systems, one for the raised ground of the dwellings and a second one for the roofs (figure 176). This dual construction scheme, developed masterfully in the Sepik region of New Guinea, according to Kaufmann, characterizes most of the still surviving "pile dwellings in tropical regions, on hills, in freshwater lakes, in lagoons and quiet ocean bays" (p. 18).
- Even with this clear separation of support systems, lake dwellings remain subject to decay. Old pile-work houses "can collapse without any warning" and therefore need a "regular pattern of renovation" of their individual parts.
- The necessary renovation and replacement of individual parts seemed to

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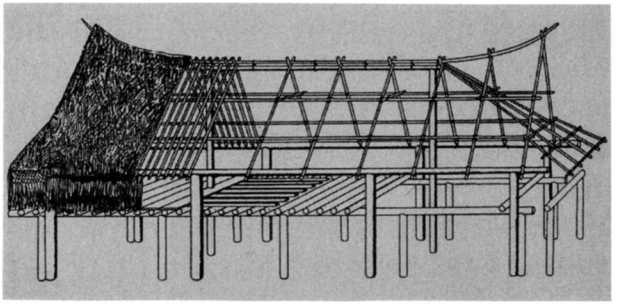
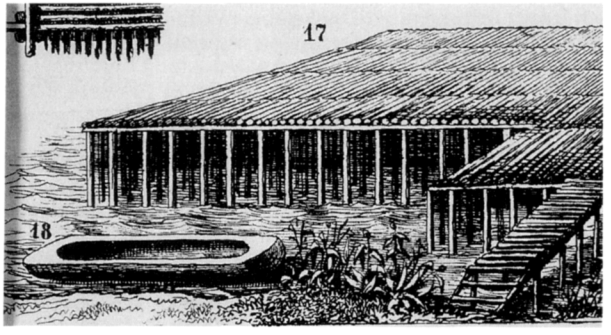
174–176
On the basis of his experience of actually living in the lake dwellings of New Guinea, ethnologist Christian Kaufmann corrects existing prejudices. Houses on pilotis and houses on the ground can coexist next to each other (174). In summer, people live on pilotis; in winter, in earthen mounds (Kamchatka) (175). Without diagonal supports the platforms can easily fold together (176).



177
The platform rendered by Keller's student Johannes Staub as utterly stable would have become a problem in the long run.



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Kaufmann to be especially difficult when a *continuous platform* on which several dwellings stand has to be kept in good repair. In other words, the kind of platform that Keller's student Johannes Staub represents in his "Volksschrift" of 1866, so confidently inspiring and stable, would have been especially hard to maintain (figure 177).

- Kaufmann therefore suggested a reexamination of the actual model of Keller's rendering, *Le village de Kouaouï* by Sainson (figure 170). And there it is: the six houses are connected in pairs in two cases (on the left and in the middle of the illustration), but their platforms are distinctly small. There is not the slightest suggestion in Sainson's rendering of a single continuous platform that would be a kind of agora above water. Hence Kaufmann concluded that Keller "has freely interpreted the data from New Guinea in one decisive point: *there is no mention there* of a continuous pile-work platform as a base to all houses" (p. 14).

It is not so astonishing that Keller read Sainson's illustration imprecisely. He obviously had an intention, an urge, to mythical idealization quite likely in the direction of "One platform—one village—one community!", as Kaufmann attempted to paraphrase Keller's retrograde vision (p. 14). What is astonishing is that later archaeologists trained in the natural sciences failed to notice this simple divergence from Sainson's rendering for such a long time. Only Paul Sarasin (1907) seems to have been something of an exception, rejecting the existence of platforms early on, but he added a new set of problems with the mere title of his article: "On the Development of the Greek Temple out of the Lake Dwelling."

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Abandoning the idea of a continuous platform certainly does not mean that new lake-dwelling research takes up the "extreme position of Emil Vogt, who for a while categorically rejected the existence of lake dwellings."[15] The signal that the pendulum had begun to swing in the other direction came from Walter-Ulrich Guyan, with his excavation at the settlement in the moor of Thayngen Pond in the canton of Schaffhausen. He began this in 1950, arrived at decisive evidence in 1966, and published it in 1967. Guyan reports on it himself as follows:

- "*Houses built on stilts:* For the first time in the most recent settlement [of Thayngen Pond, in two out of nine houses] evidence was found of a type of house with its floor *raised above ground.* It is a post construction of half-timbers, that is, of logs split in half, often of elmwood, *bored through twice,* with two sets of poles, cross-beams, or girders drawn through the holes at a vertical distance of 80–85 cm."[16] As figure 178 shows, the lower cross-frame rested on long beams that were supposed to prevent it from sinking into the moor. The upper cross-frame supported the raised floor of the house that consisted of a grid of logs with a floor of planks on top.[17]
- "*A frame house.* It is remarkable that on this dwelling site of the Neolithic period the frame house was also used [figure 179]. As far as we know, in our country this method of building is in evidence only in Thayngen, and it involves the *pegging* of the posts into the cross-beams and the cross-bars. The builders in the moors were technically highly skilled."[18]

With Guyan's striking evidence—striking because it clearly proved highly advanced methods of construction to have existed in the Neolithic period—the controversy between the parties defending pile-work on land or in the water seems to have subsided. Because Guyan unequivocally proved the raising of the buildings above the ground, he also proved the common element that puts the building in a state of flotation, regardless of whether it is a pilotis in the water or a pilotis on land. This is also E. Stöckli's view about Thayngen Pond: "Thus the house floor was 1 meter above the earth. The cited settlements with a floor of planks need no 'lake-dwelling theory' to explain

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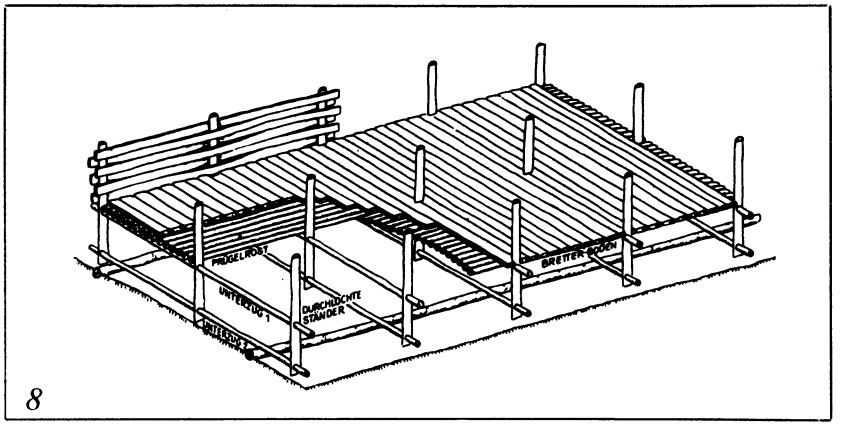
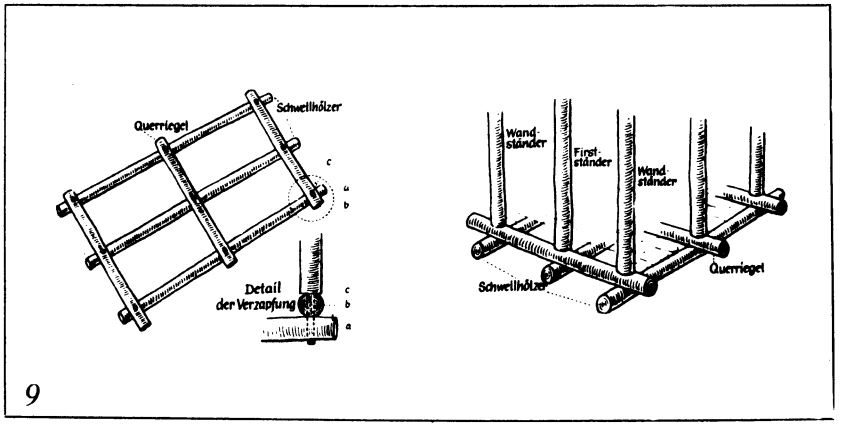
178, 179
The complete rejection of the existence of lake dwellings in Switzerland that became widespread about 1950 was disproved by Walter-Ulrich Guyan's findings at Thayngen. He showed houses built on stilts (178) and houses using frame construction (179).





them, since the remains today allow clear conclusions about the former constructions."[19]

The piles' purpose may remain controversial, but the piles themselves have endured and keep inquiry alive. Since Michel Egloff, cantonal archaeologist of Neuchâtel, started to take aerial photographs of his research area, the estimated number of pile-work sites on the Lake of Neuchâtel (for a long time the most densely populated region of Switzerland) has risen again. For figure 180, Egloff flew over one of the late Bronze Age sites of Cortaillod and photographed it through the water down to a depth of 2 to 3 meters; he believes

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he recognizes parallel "streets" or trails, which suggest placement of houses in fields or rows. This represents a scattering pattern (which Klee might compare with the sowing of dots) on a titanic scale and witness to titanic labors, since the pegging down of each individual pile required effort and physical energy, heavy hammers, and also ramps or ladders or even rafts to hammer them in from above.

The "proponents of a supposedly definitive rejection of any kind of construction on piles, even such as stood on the shore and offered protection against the floods," were forced on the defensive. In the special issue of *Archäologie der Schweiz* (1979) mentioned above, Hans-Georg Bandi justly reproaches them for their unconcern or complete negligence regarding the preservation of valuable documents and models from the time of discovery (1854) and the subsequent lake-dwelling fever, because being shortsighted Puritans they were "not even able to recognize their scientific significance."[20] With these words, on the occasion of the 125th anniversary of Swiss lake-dwelling research, Bandi not only castigated the rigidity of the extreme positions and led opponents to talk to each other, but he also introduced the new horizon of reception history to the discussion of lake dwelling. That horizon started in 1854 and for a number of decades it represented a value in itself, regardless of whether today we look down on Keller's idyllic vision of the Pacific islands, or reject it completely, or find it feasible in a reduced version.

Bandi was president of the Swiss Society for Early History when two archaeological sites were endangered by two national projects: the second correction of the Jura water level (1962–1971) and the start of construction of the national highway system. That archaeological concerns were taken into consideration and a series of endangered shoreline settlements (e.g., Auvernier in the canton of Neuchâtel, or Twann in the canton of Bern) could be explored is due to his interventions.[21] To his recognition of reception history Bandi connects concrete concerns about the preservation of the documentary data. Besides the actual findings, the reactions, versions, and visions of early explorers of the lake-dwelling theme in models and paintings of that period should also be studied anew and "rehabilitated for what they are worth." With Karl Zimmermann, Bandi organized an exhibit in the Historical Museum of Bern entitled "Lake-Dwelling Romanticism of the Nineteenth Century" (1980).

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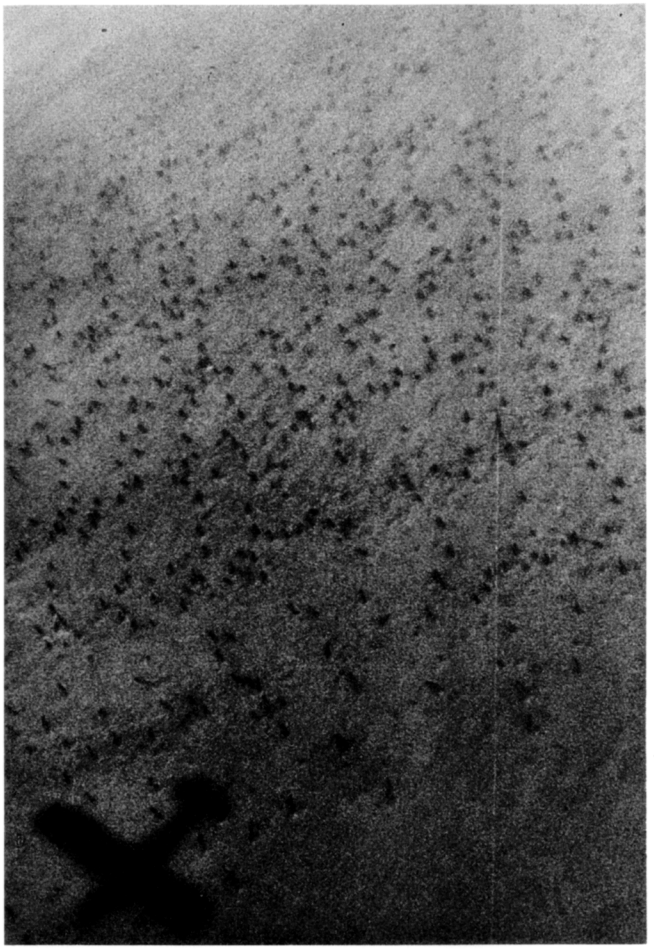

180
Through his aerial photographs of the lakes, Michel Egloff was able to prove the full extent of the fields of pilotis under water. In addition he discovered a kind of pattern in the pilotis trails.

With this clear distinction between the plane of actual field research and the plane of the history of the discovery and exploration of the lake-dwelling phenomenon in the nineteenth century, a new freedom was achieved. It was much like the enrichment through Christian Kaufmann's alternative research perspective, which does not lead from Obermeilen to New Guinea but the other way around. Needless to say, in this book I fully share Bandi's approach, for I deal with the lake-dwelling fever during the years of LC's youth in western Switzerland—regardless of what present researchers think of this epoch and its enthusiasms.

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Discoveries of lake dwellings on other Swiss lakes took place at a furious pace. One almost feels the enormously heightened expectation of such findings, and it was fulfilled as early as 1854.

- On March 17, 1854, Ferdinand Keller first reports the discovery at Obermeilen in the *Zürcher Freitags-Zeitung*. "The news is received as a sensation and it causes a tremendous stir in the forest of newspapers at home and abroad."[22]
- Still in the spring of 1854, Keller (figure 181) travels to the Lake of Bienne, where two explorers of antiquity, the notary Müller from Nidau and Colonel Schwab from Bienne, are eagerly waiting to show him their findings. Keller is especially impressed by the so-called Steinberg (mound of stones) before Nidau, seemingly only a mass of debris and gravel under water, but covered with pile-work: "by piles standing now isolated, now in straight or crooked rows, now in groups." Keller is astonished that this mysterious shallows could remain completely unnoticed until recently, although the gazes of fishermen had wandered over it for centuries. A layer of lime covered and hid the strange yet beautiful bronze utensils lying underneath. In short, "Strangely enough, the actual meaning of this mound of stone was discovered only in the spring of this year due to the published notice about the discovery at Meilen." Together with Keller, Müller and Schwab become convinced right on the site that this pile-work was not to be ascribed to the Romans but "must have had great similarity to that at Meilen."[23] In other words: Keller's Pacific analogy with New Guinea is beginning to take effect, acting as a suggestive aid to the imagination.
- On May 12, 1854, the notary Müller informs Keller in a letter: "In the Lake of Neuchâtel there are also pile-works, namely at Port Chevron, Corcelettes, Auvernier, and Colombier. I have informed Mr. Troyon of this and heard from him that as soon as the weather is calm enough and the water has become limpid, he will start out to examine exactly the mentioned places."[24]
- Frédéric Troyon, curator of the Museum of Valais in Lausanne, reports to Keller on August 11, 1854: "I have found pile supports at Yverdon between Clindi et Champ Pittet. In Corcelettes they are especially numerous. . . . I know five other sites on the Lake of Neuchâtel. . . . The Lake of Geneva is no

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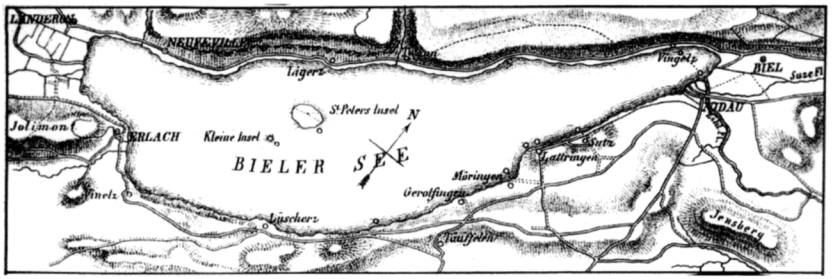

181
The Lake of Bienne—another lake-dwelling domain.

less rich."[25] (*J'ai retrouvé des pilotis près d'Yverdon, entre Clindi et Champ Pittet. À Corcelettes ils sont particulièrement nombreux. . . . Je connais cinq autres localités sur le lac d'Yverdon* [i.e., on the Lake of Neuchâtel] . . . *Le Lac Léman n'est pas moins riche.*)

- Still in 1854, Keller publishes his first report in the *Mittheilungen der Antiquarischen Gesellschaft in Zürich,* under the title "The Celtic Lake Dwellings in the Swiss Lakes."

Keller published seven further reports at regular intervals, the last one in 1878, in which he not only described new findings carefully and objectively but also gave other professionals the chance to speak. The information about western Switzerland he printed in French; apparently it was self-evident for this generation that one could at least read both languages without difficulty. In general, the exchange between the two cultures speaking different languages was marked by mutual respect, by pleasure, and by exuberance.

In retrospect the most important discoverers and pioneers next to Keller (Zurich) were Colonel Schwab (in bilingual Bienne), Edouard Desor (Neuchâtel), and Frédéric Troyon (Lausanne). With the exception of Schwab, who in addition to his military duties was devoted to hunting, and correspondingly treated the search on the three lakes of the Lake Region (Bienne, Morat, and Neuchâtel) as a well-organized archaeological chase starting out from the boat, all had a certain verbal mastery and published a lot. A strong-willed character and at times an arrogant oddball, Schwab had at his disposal considerable means left from his father, and not only developed a search device that could be used from the boat (figure 182), but also could afford his own search party consisting of fishermen whom he employed here or there at short notice.

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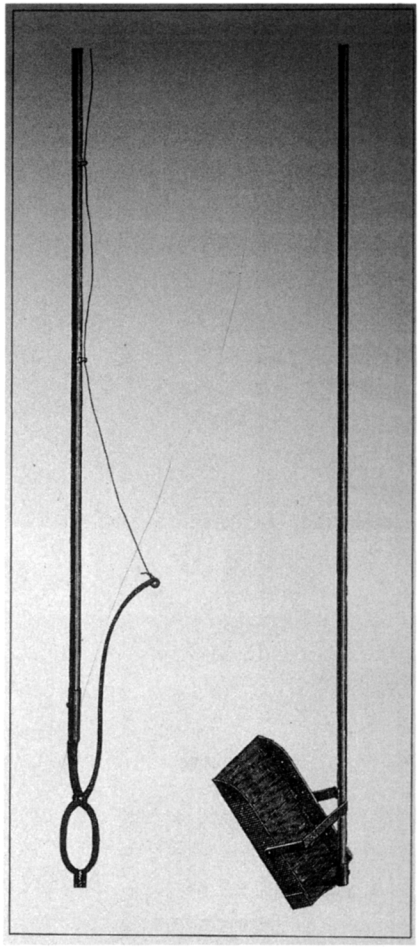

182
A set of pliers and a scoop used by the search parties led by Colonel Schwab (Bienne).

In the decade of discovery from 1854 to 1864 the Lake of Neuchâtel proved to be the richest region in lake dwellings among the lakes of western Switzerland: first, in the density of sites on the shore; second, because one of the sites, La Tène, located on the outflow of the river Thielle from the Lake of Neuchâtel, was soon allotted great historical significance. Therefore it was no accident that the widely known popularizing volume by Johann Staub, *Die Pfahlbauten in den Schweizer Seen* (1864), illustrated only the Lake of Neuchâtel completely, entering all forty-seven shore sites known at the time and trying to make attributions to different periods (figure 183).

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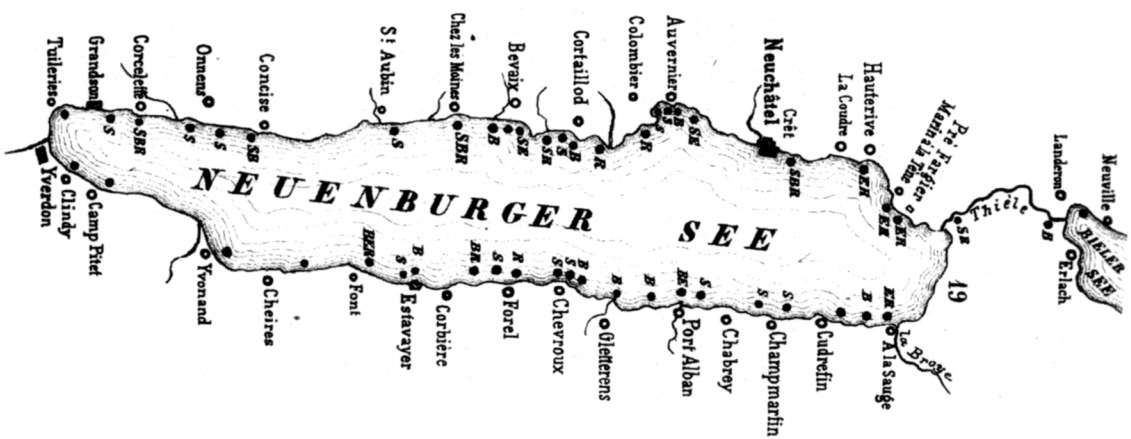
Only three years after the findings at Meilen (and Keller's Pacific analogy to it), the discovery of La Tène was reported (November 1857) and proclaimed a sensation; because here, among a submarine forest of piles on the *blanc fond* (white ground) of the shallow eastern edge of the lake, lay iron jewelry and single coins all distinguished by refined ornamentation.

Can piles and iron objects stem from the same period? Can coins and the monetary exchange indicated by them go hand in hand with a lake dweller's life?

Since the next two winters proved exceptionally cold, and in the Lake Region this resulted in low water levels (*des eaux basses*),[26] the search could go on feverishly and with greater chances of success. Regarding La Tène, a conflict over priorities became unavoidable. In Bienne, Schwab was uncontested as the discoverer of the site, whereas "the Neuchâtel archaeologists claimed this honor for their fellow citizen Professor Desor."[27] Since Schwab could devote himself to being a hunter and collector of archaeological findings and was in position to finance a search party, one can imagine that he was able to secure many more objects than the geologist Desor from Neuchâtel. Especially because Desor came to the fore as the first renowned scientist of the early generation of lake-dwelling researchers, and since, as we will see later, he followed a new methodological principle, finding and appropriating did not count as much for him as for Schwab, and he valued just as much the describing and comparing of findings.

183
The Lake of Neuchâtel proved to be the area richest in lake dwellings, and it remains so today. Close massing together of the lake-dwelling sites; outstanding significance of La Tène. (S = Paleolithic; B = Bronze Age; E = Iron Age; R = Roman period.)



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The high-minded enthusiasm for lake-dwelling research gripped western Switzerland to the same degree as it did German-speaking Switzerland. Two publications, *Habitations lacustres* by Troyon (1860) and *Les palafittes ou Constructions lacustres* by Desor (1865), awakened as much interest in France as had Keller's reports in Germany. Since Napoleon III personally began to be interested in the Swiss discoveries, it is not surprising that Swiss authorities at the Exposition Universelle in Paris in 1867 showed a detailed and painstakingly selected representation of lake-dwelling antiquities. The Commissioner General of the Swiss delegation, Feer-Herzog, called on two Neuchâtelois as his advisors, Professor Desor and Dr. Clément. Further validation was not slow in coming. In 1872 the Seventh Anthropological-Archaeological Congress, meeting in Stockholm, decided to name the Second Iron Age following the Hallstatt Period the La Tène Period after the La Tène site on the Lake of Neuchâtel.

Switzerland—admired as the sanctuary of primeval values, a seemingly intact, pristine realm of the Alps, of glaciers and peaks, much visited and much described for the innocence of its shepherds and herdsmen since the eighteenth century—in the middle of the nineteenth century was in the process of giving itself a further, astonishingly marked profile for its prehistory. Not only was it in position to present hundreds of spectacular findings from its lake shores, but it could credibly show that its original population had lived above water on islands created by human hands! To the already attested primordial aura of the alpine republic was added almost as a multiplier the profile of earliest human history that bears astonishing and even extravagant features. With regard to original conditions or closeness to cultural origins, Switzerland seemed to become a special case in northern Europe. It is understandable that England, which a hundred years earlier had furthered the touristic discovery of this mountainous country, did not want to lag behind. In 1866, John Edward Lee, FSA, FGS, published *The Lake Dwellings of Switzerland and Other Parts of Europe* (London), an impressive translation with new illustrations of Keller's reports from the *Mittheilungen der Antiquarischen Gesellschaft in Zürich.*[28]

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The picture of the lake-dwellers' village, as Sainson carefully observed it in New Guinea and as Keller transplanted it to the surroundings of the Lake of Zurich in his evidently spontaneous enthusiasm for a possible analogy, is copied literally for several years. However, from 1860 on, freer variations spring up, especially in publications of French-speaking archaeologists. What remains unchanged is the basic idea of the pilotis but also the platform, whereas the hut and its roof constructions go through many variations.

Two years after Keller's suggestive proposition, *Des Volksboten Schweizer Kalender* (a kind of farmer's almanac and calendar) prints a copy of Keller's drawing in its 1856 volume (figure 184). The horizontal format has become vertical. The series of house types—gabled, circular, small gabled, slanted hut with projecting roof—remains unchanged, but the awkwardness of Keller's perspective rendering is corrected and given an axis. The resulting dramatization is further heightened by moving the mountain scenery closer, and especially by a marked bird's-eye perspective, which makes the dubious part of Keller's copy of Sainson (i.e., the platform) even more obtrusive. In 1859, the Bernese geologist and archaeologist Karl Adolf von Morlot made a drawing for schoolroom instruction that also transports Keller's reconstruction to a Swiss mountain lake (figure 185). From its details one can deduce that the vertical format of the *Volksboten* must have served as a model.

In 1860 Troyon published his handsome book *Habitations lacustres des temps anciens et modernes,* with his version of buildings on water containing exclusively round huts (figure 186). He justified this on the one hand by a reference to Strabo (IV, 4): "The Belgian Gauls made their huts spacious, using boards and wicker work, with a high cupola-shaped roof." In his second report on the lake dwellings Keller also referred to the same passage and also held it "beyond doubt that the circle was the basic form of many huts." Troyon went beyond Keller: "The primitive buildings in Europe were generally round."[29] His main argument was that the round form was best suited for accommodations against the hard northern winters. With this he involuntarily ran across the simple question, which he nevertheless left undiscussed,

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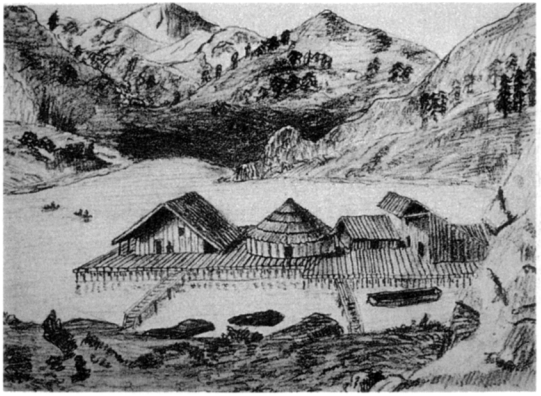
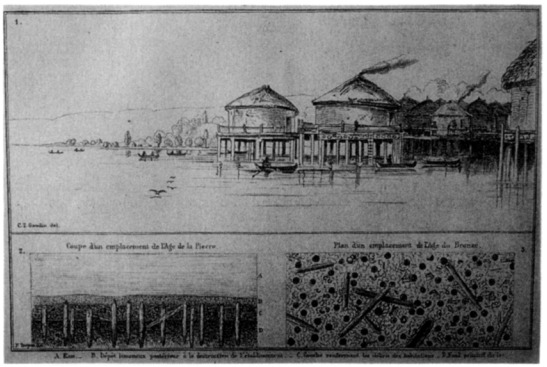
184
Des Volksboten Schweizer Kalender for the year 1856 takes Keller's thesis of the Pacific analogy as an indisputable reality.

185
Karl Adolf von Morlot (Bern) copies Keller for teaching purposes.



186
In contrast to German-speaking Swiss versions, Frédéric Troyon's version contains only circular huts.



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of climate, of climatic changes, of the presumably inclement cold winter that does not make everyday life on a wooden platform seem desirable or appealing.

It is significant that the person taking up such questions was not Troyon but the Neuchâtel geologist and archaeologist Desor, who maintained that the lake dwellings were not used the whole year around. Presumably, Desor considered *Habitations lacustres* a rather premature compendium, for in his book *Les palafittes ou Constructions lacustres du lac de Neuchâtel* (1865) he demonstratively limited himself to treating the findings on a single lake, which to be sure, after the discovery of La Tène, offered the widest spectrum of chronological layers.

Troyon's goal was to record the global occurrence of lake dwelling from antiquity to the present. In fact, he gives a wealth of references, for instance, the example of Kamchatka's inhabitants mentioned above. This makes him an early and trail-blazing comparatist. But his argumentation in some particular cases is often hurried and indefinite, at times even contradictory. It becomes clear that he is not capable of thoroughly filling the global frame he imposes on himself—understandably enough, since the science of prehistory and early history was then still in its beginnings.

Although Desor seems to have handled Troyon's great book with the necessary reserve, Keller became involved in a critique of Troyon, which he first published in German in the *Mittheilungen* but later also in French as well (*Remarques sur le livre intitulé "Habitations lacustres des temps anciens et modernes" par Fréd. Troyon,* Lausanne, 1863). Keller's review monotonously enumerates many slight errors in Troyon's text, obviously not avoiding a pedantic tone. The pragmatist Keller protests with annoyance that Troyon is not a pragmatist but a systematist. Yet he does not try with one single sentence to understand what Troyon actually undertook: to make an inventory of one single building type in all regions and times. This building type happens to be traceable far back before the time of classical antiquity and well into the nineteenth century (and is especially popular today with the poorest population of the Third World who cannot claim any property or land). The piquancy of Keller's refusal to understand Troyon is that he represents himself exclusively as an exact observer, although his own transposition from the Pacific to the Swiss lakes is marked by inexact observation.

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In contrast to Troyon, Desor limits his focus of observation and makes use of methodological directives that he incorporates from his professional field of geology: "We have let ourselves be guided by ideas that we apply to lake-dwelling research using the methods of geology, which means: to watch for the accompanying circumstances that archaeologists do not always duly recognize as significant, namely, the placement of the found objects, their frequency, their mutual relations, their state of preservation."[30]

The only comprehensive picture Desor includes in his *Palafittes* (figure 187) stems from the Neuchâtel painter and writer Rodolphe-Auguste Bachelin (1830–1890). Desor's limitation to his own region is also mirrored by Bachelin. The mountain chain of Creux du Van, which separates the lake shore from the declivity of Val de Travers, dominates his composition. The buildings seem spread out in small groups connected by wide, astonishingly extensive platforms. As far as I know, this is the first step by a painter of landscapes and historical and military subjects in the direction of prehistory, which would come to fascinate and stimulate him more than he could admit at the time.

In the same years two other overall pictures of lake-dwelling villages were published. One was an illustration in Johann Staub's *Volksschrift* of 1864 (figure 188), the other a travel vision of the Englishman John Edward Lee (figure 189), who visited the Swiss sites and translated and commented on Keller's lake-dwelling reports. The quality of these two illustrations is the exact reverse of our expectations. The stranger from the British Isles brings greater intuition to the task of recreating what occurred in the past than the Swiss teacher. Admittedly, Staub's illustrator, Manz, recreates faithfully the shorelines of the Lake of Zurich, but he depicts the lake-dwelling site as a military camp. It is astonishing that Keller, who of course is cited by Staub as his guiding authority, did not raise an objection. The damage this confusion of an archaic settlement with a disciplinary institution must have caused, especially to children, was considerable, because the illustration was not only on the cover of Staub's widely known book but also was included in numerous other schoolbooks.

Lee combines what he saw at the sites and what he read in Keller's reports into a simple overall view from which all features of Keller's analogy to New Guinea are excluded. Obviously, this happened intentionally, for Table

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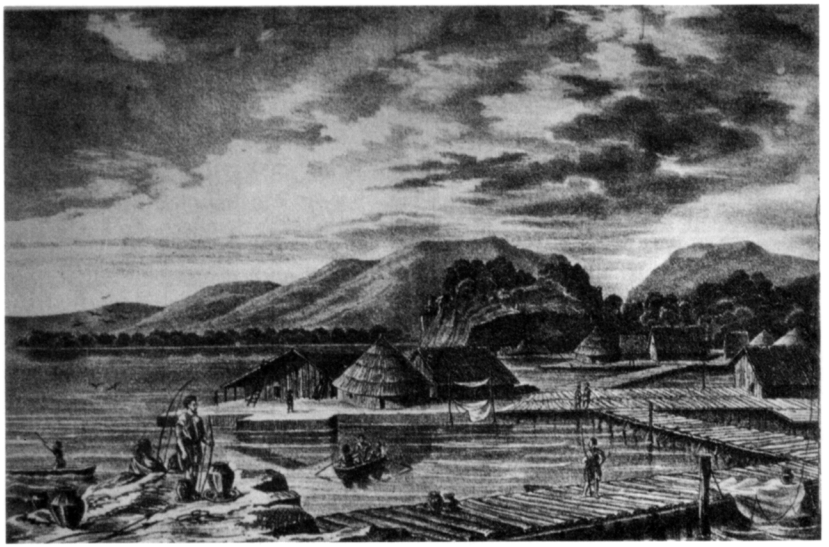
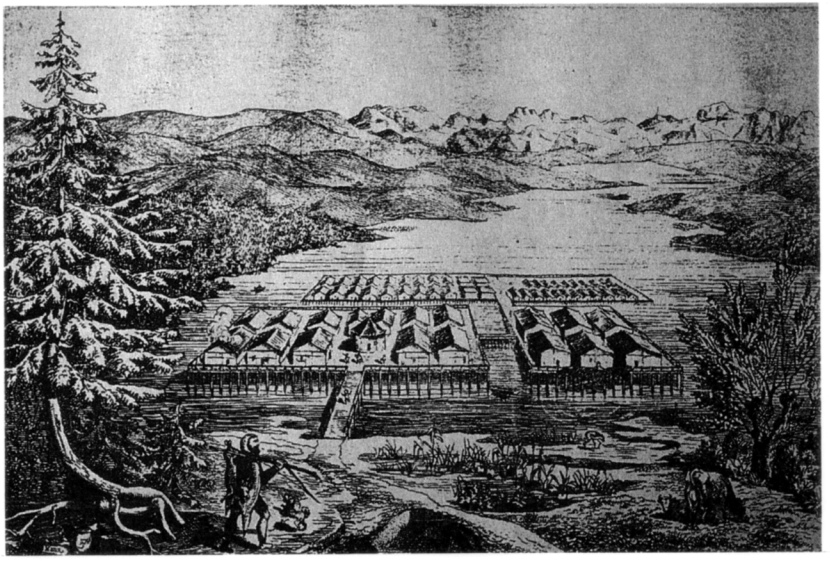
187
The Neuchâtel version, as drawn by R. A. Bachelin for Desor's book on the *Palafittes*.



188
Illustration in Johannes Staub's *Volksschrift* of 1864.



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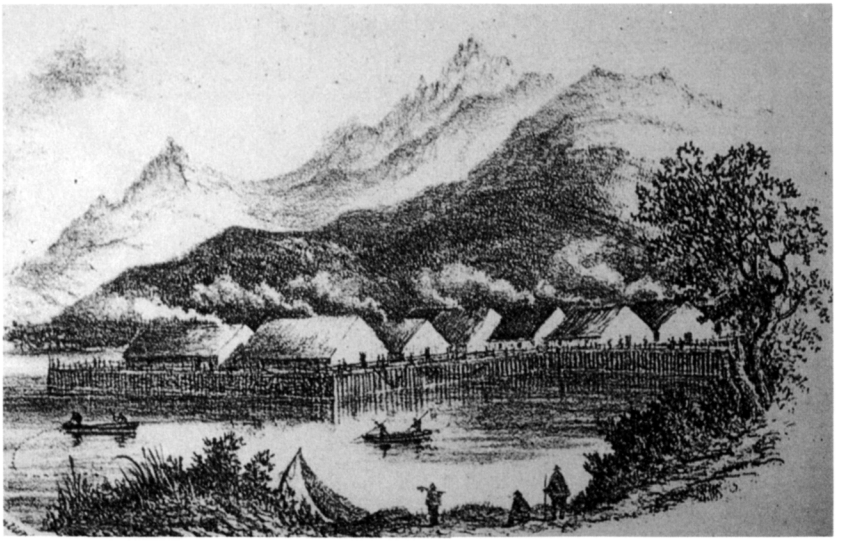
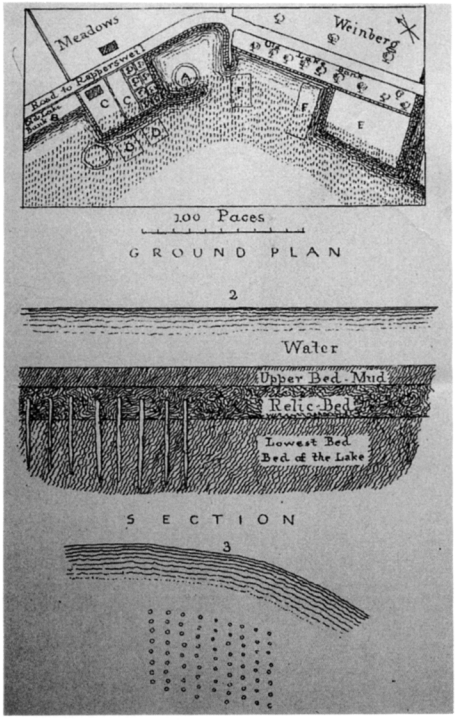
189, 190
Englishman John Edward Lee sought out the sites of the Swiss findings and drew them himself as the background for historical reconstructions (189). In his translation and commentary on Keller's lake-dwelling reports (London, 1866), Lee shows Keller's report from Meilen on the Lake of Zurich, but *without* the Pacific analogy (190).





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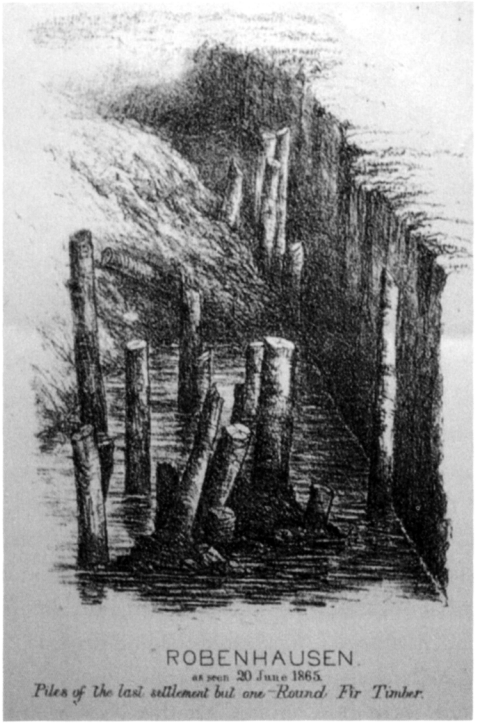
I of the Obermeilen site in Keller's first report is faithfully reproduced and provided with English captions (figure 190), but without Keller's perspective view after Sainson. Again our expectations are disproved. One would have expected Lee, a subject of the greatest worldwide colonial power at the time, to have a special understanding of the Pacific parallel from New Guinea, but he leaves it out on purpose. Lee's drawings on site and the exactness of his observation deserve a special mention. On June 20, 1865, standing in Robenhausen in the Lake of Pfäffikon (canton of Zurich) in front of the free-standing piles, he looks carefully, and by his insistent observation he is able to endow the banal motif with a new expressive force (figure 191).

191
The exact condition of the site in Robenhausen on June 20, 1865, subtly observed by John Edward Lee.



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Let us return to Desor's *Palafittes,* which is a contribution to lake-dwelling scholarship quite different from Troyon's comprehensive account. Desor not only limits himself regionally and tries to introduce the methodological directives of geology into the new field; in addition, with the title *Palafittes,* borrowed from Italian, he coins a new word for the lake-dwelling phenomenon—a word that will be explained to the young LC in his schoolbooks. But above all Desor was in a position—as far as I can see, as the only scholar next to Keller—consciously to evaluate the methodological aspects of what was happening in the new field and to compare them with parallel developments in the firmly established neighboring sciences. It may be that he all too generously overestimated Keller's *Idee,* as he calls it, at Obermeilen in 1854. But he understood what was happening and was able to think of Georges Cuvier, an eminent precursor who was also able to discern much from the little that was given, drawing from the smallest vestiges conclusions about comprehensive connections. Therefore we have to credit Desor with giving a horizon to this new field of exploration, a horizon that proved its worth in the approaching phases of lake-dwelling fever. I quote here the most important parts of Desor's introductory argument:

More than once, when the water level was low, from the bottom of the lake had been pulled large antlers and strange utensils whose origin was unknown, also from the Lake of Zurich in 1829. But all this remained a dead cipher. It was considered bizarre, that was all. Yet a single idea was enough to instill life in those old relics and to get them to recount wonderful things. A genuine scientist attends the digging undertaken at the low water level in Meilen on the Lake of Zurich in the winter of 1853/54. He is shown decaying piles and broken shards. . . . What could not be recognized was the relation among these objects and especially their relation with the piles rammed in the ground. . . . This relation was what our friend Ferdinand Keller, aided by his experienced gaze, began to recognize, and once it was traced it could become a rousing signal that has led us to the discovery of a whole unknown world. . . .

Hence, there must have existed dwellings or storage rooms, intentionally built above the water in the zone of the piles . . . shelters above water, possibly

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inhabited only temporarily. . . . The history of science does not have many examples of such a brilliant rediscovery; it recalls that of another domain which we owe to Cuvier's genius.

Mammal bones had been collected for a long time in the lime pits of Montmartre. But what remained unrecognized was the relation of the bone fragments to each other and to the surroundings. One evaluated them as relics from the Deluge. Then comes Cuvier, studies the petrified old skeletons—and he recognizes in their interrelationship and location evidence of the creation that preceded human existence. Only a small number of fossil bone fragments had sufficed the French natural scientist to reconstruct a whole phase of earth's history; a small number of ceramic shards buried under the gravel of the Lake of Zurich sufficed our scholar of antiquity [Ferdinand Keller] to uncover for us an unknown period of human existence, which lies beyond the boundaries of [written] history.[31]

Cuvier comes, studies, and recognizes. But what do his achievements consist of? Why has Desor no greater praise to give than a comparison with his name? And similarly, how does it come about that another contemporary of Ferdinand Keller, namely the Hamburg architect and theoretician Gottfried Semper (1803–1879), makes plans "to collect material for a future Cuvier of the science of art?"[32] If we want to understand the primary connection of the natural sciences of that time with lake-dwelling archaeology, we have to seek a notion of the intentions and the research of the much-admired Georges Cuvier (1768–1833), who was made a baron. This is not easy, as Cuvier not only collected triumphs of anatomical discovery but had an influence far beyond his own professional field, as Semper and Desor independently but almost simultaneously proved.

Only three years before his death Cuvier became involved in a "significant scientific explosion" against a colleague at the Institute in the Jardin des Plantes in Paris. His name never fully recovered from this explosion, because his opponent, Etienne Geoffroy Saint-Hilaire, belonged, with the older Lamarck, among the pre-Darwinists, doing research on evolution and anticipating perspectives that Darwin was to develop in a larger framework. From today's perspective Cuvier's theories of *fixisme* and *catastrophisme* may seem dead ends, and Cuvier stopped at nothing to oppose consistently any tendency toward evolutionary theory (although in his later

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years he ran into strong opposition). He cannot be classified as a conservative or traditionalist, however. He actually saw himself as a revolutionary in his field, and his impact extended far beyond it.

The thinker who valued and described the scientific controversy in the Academy of 1830 as a "significant scientific explosion" was Johann Wolfgang von Goethe, eighty-one years old at that time, who followed the Parisian events from Weimar with the greatest interest. The intensity of his interest is shown at a meeting with Soret, recorded by Eckermann for August 2, 1830:

The news of the start of the July revolution reached Weimar today and set everything into a turmoil. In the course of the afternoon I went over to Goethe.

"Well," he shouted as he saw me, "What do you think of this great event? The volcano has erupted, everything is in flames, and it is no longer a negotiation behind closed doors!"

"A terrible story!," I replied. "But what else was to be expected with conditions as they are and with such a ministry, except ending it all by chasing away the present Royal family."

"We don't seem to understand each other, my good friend," replied Goethe. "I am not talking about those people; I am concerned about very different matters. I am talking of the public explosion that has occurred in the Academy, of the controversy between Cuvier and Geoffroy de Saint-Hilaire, so significant for the sciences."[33]

The object of the controversy between Cuvier and Geoffroy is described as follows in the Hamburg edition of Goethe by Dorothea Kuhn, who wrote the commentary on the topics of the natural sciences:

On February 15, 1830, Geoffroy de Saint-Hilaire reported casually the view of two younger scientists that the mollusks, especially the cephalopods (cuttlefishes, as for example the octopus), could be considered vertebrates whose lower trunk has been bent backward in such a way that the pelvis came to lie against the neck. On February 22, Cuvier stated that if this were true most of the inner organs of the cephalopods would have the opposite location from that of the vertebrates. . . . Geoffroy believed one type for all animals had been found, while Cuvier assumes four basic types that do not admit of further reduction. For

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Goethe this basic contradiction represents the counterplay between *differentiating* (Cuvier) and *summarizing* (Geoffroy). That he himself inclines toward Geoffroy's side has its grounds in his manner of research. . . . To be sure, from the point of view of the present, since both scientists proposed a theory of types, the difference between the two ways of thinking is not that hard to bridge. Even Goethe's energetic support for Geoffroy leaves room for the view that both are right, as long as they allow both positions to be valid.[34]

Goethe is noticeably impressed by the fact that both researchers, who have worked half of their lives at the same institute, are set against each other to the point of hostile opposition, not by the subject matter but by *the way they look at it.* He draws from this the following conclusion addressed to biologists, counting himself as one of them:

May each of us say, on this occasion, that separating and connecting are two indispensable life activities. Or to put it better: it is inescapable, regardless of whether one wishes to or not, to move from the whole to the individual and from the individual to the whole, and the livelier these functions of the spirit work together, like *inhaling and exhaling,* the better the scientists and their friends will be provided for.[35]

Before such confidence in the fate of the natural sciences and research one can only say today, fortunate decades! This applies also to Goethe's conclusion about the explosion between the two Frenchmen: he believes he has "noticed that since then scientific investigations in this field are treated more freely and more wittily by our neighbors."[36]

Thus Cuvier found his theories challenged by the pre-Darwinists, but his achievements as a paleontologist had an enormous impact especially on historians in other fields, on Semper as an architectural historian and, rather indirectly, on Keller as an archaeologist. The reason is simple enough: with paleontology and soon also with geology, the natural sciences that advance into the zone of prehistory draw more and more respect from historians of humanistic subjects. Semper describes this process, which was "an important phase of his years of study," as follows: "When I studied in Paris, my usual walk was in the Jardin des Plantes, and there I always felt pulled out of the sunny garden as by a magical force into those rooms where the fossil relics of

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the animal kingdom of prehistory are arranged . . . in long rows. In this marvelous collection, the work of Baron Cuvier, are found the prototypes for all complicated forms of the animal Kingdom."[37]

This marvelous collection of Cuvier was what provided once and for all the framework for Semper's theoretical work. It suggested the question "whether in our observations . . . of nature . . . we may conclude, by way of *analogy,* that the creations of our hands, the works of art, are to be viewed in the same way." Semper thus conceived the plan of writing "a Cuvier" of the *science of art,* intending to apply "a method similar to that followed by Cuvier to art and specifically to architecture."[38]

Semper's fascination as a student in Paris with the Jardin des Plantes and with Cuvier's collection implied three decisions that remained binding during his whole life. First, with his admiration for Cuvier, he recognized the natural sciences of his time as models for research; second, he developed the confidence to develop a method for the classification of art that was to be analogous to the method of the natural sciences; third, it was already clear to him that this classification should be concerned with "original forms and types," that is, with a study of types.

Cuvier's *Das Thierreich, geordnet nach seiner Organisation* (The Animal Kingdom Arranged According to Its Organization) was available in a German translation by F. S. Voigt in 1831; it established four types: vertebrates, mollusks, articulates, and actinomorphous animals. One is tempted to surmise that these four types led Semper to distinguish also *Vier Elemente der Baukunst* (Four Elements of Architecture). Even when he left behind the four elements as a determining principle and distinguished four material classes, he found it noticeably difficult to go beyond the number four and to accept metals as a fifth class. A further supposition suggests that Semper was influenced by Cuvier also in his progression from soft to hard materials, since Cuvier proceeded in the opposite direction with his classification from hard to soft, from the vertebrates to the mollusks to the articulates and zoophytes.

Finally a third supposition suggests itself: Cuvier's description of the human hand may very well have had a lasting influence on Semper, perhaps even in the sense that it encouraged him to attempt a history of the functional capacities of the hand. The relevant passage reads:

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Hence man should stand only on his two feet. Thus he keeps the full freedom of his hands for his arts, and his sensory tools are located in the best possible place to serve for observation. His hands, which already draw such great benefits from their freedom, owe that no less to their structure. Their thumb, longer as compared to that of apes, offers greater facility in gripping the smallest objects. All fingers, except for the ring finger, can move freely and separately, which is not true of other animals, not even of apes. Covered by the nails only on one side, the fingertips provide good points of contact. The arms bearing these hands have a strong base in their broad shoulder blades and their strong collar bones.[39]

Semper's attempt to produce for the arts an analogy to the scientific theory of types proved an extremely obstinate one, gliding through two stages. Through it Semper did not directly arrive at a praxis but took the greatest theoretical detour of the nineteenth century. Nevertheless, this detour let him assemble and meaningfully order according to an evolutionary scheme the functional development of the human hand, an enterprise that would have kept its theoretical value even if he had not attained any further building praxis.[40]

Thus paleontology became Cuvier's true honorary title. As a researcher he was not only able to *separate* and *connect* intelligently the existing roster of living beings, but moreover was in a position to recover something that had been lost, something absent: the living beings of past periods of earth's history. This was the startling promise of paleontology for that time. In Desor's words: "A small number of fossil bone fragments had sufficed the French natural scientist to *reconstruct* a whole phase of earth's history." An audacious perspective, bound to fascinate young scientists like Edouard Desor and Gottfried Semper! For this achievement Goethe finds a formulation that employs a seemingly casual theological choice of words to express the hidden emotionality of the new kind of inquiry: "Cuvier has tried to explore and to order not only the boundless kingdom of living organisms; long *extinct* generations owe him their scientific *resurrection*."[41]

In short, the nineteenth century had great difficulty with theological questions, yet bringing light into the darkness of early history and prehistory seemed possible to its sciences to an astonishing degree. Hence one feels permitted to speak of a *resurrection* of the lost and vanished.

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25 The Haptic Joys of Closeness to Life: The Building Model Gains Dominant Significance

The passion for the three-dimensional historical model, if possible finished in color, was in full swing about 1870, doubtless stimulated by the high degree of tactility achieved and the greater closeness to reality promised at that time. Thus the calendar picture of Swiss lake dwellings from the *Hinkende Boten* (Farmer's Calendar; figure 192) was visibly influenced by the models of Maximilian W. Götzinger; they are said to have been made according to specifications by Ferdinand Keller. Götzinger (1835–1903) was a watchmaker before he became a model builder. The illustration shown in his promotional material (figure 193), which he based on Keller and authorities such as Rütimeyer and Desor, seems awkward compared with his built model (figure 194). This can provide all the haptic joys of closeness to life that appeal directly to a child and awaken at once the neglected playful imagination of an adult. Naturally grown, woven, and carved materials send out their powerful message, as fresh as on the day they were made. On the one hand the whole looks as if seen through a reversed telescope—the miniaturization releases near-magical possibilities of feeling one's way into the scene represented. On the other hand the mirror of the water surface (of glass) elevates this small and therefore innocent world into a panoptical event. For one can not only look *at* the scene but look *through* (down to the lakebed); and in addition to seeing from above one is invited to see things from below, a view that makes everything seem raised aloft as if gravitation had not been given power over humankind. It is as if Original Sin, understood as the physical liability to falling and crashing down, had not taken effect.

About 1870 Götzinger's marketing of models (the smaller version for 100 Swiss francs, the larger ones up to 250 Swiss francs) had behind it a hundred years of tradition. In earlier years, however, the model's subject matter had not been the world before history but the world of classical antiquity. For instance, in 1786 the Leipzig art dealer Rost offered for sale a collection of "Monuments of Italy, Modeled in Cork." He evidently was addressing a higher public, leading him to claim that "the admirable exactitude," "the faithful rendering of the masterpieces of antiquity in their true colors," and "the decayed, weathered and moss-covered parts" required "long and hard work of

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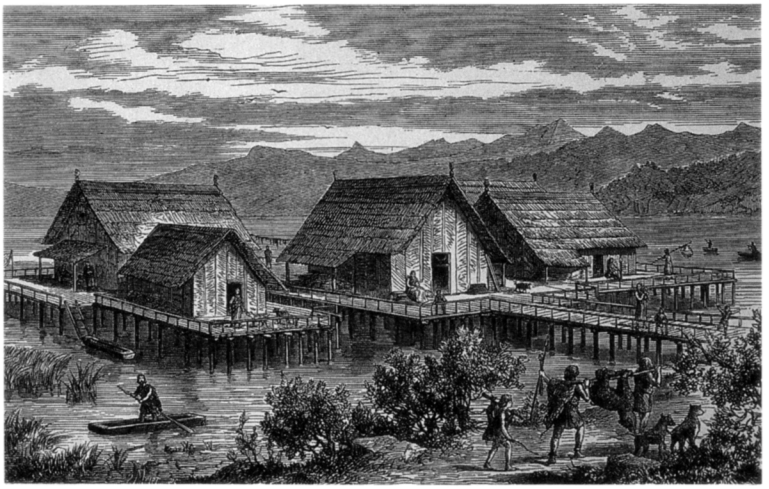
192–194
The three-dimensional model, if possible painted in color, was in full swing around 1870. A picture in the *Hinkende Bote* calendar (192), for instance, was influenced by the models of the former watchmaker M. W. Götzinger (193, 194), which achieve a striking closeness to life by their details.



FÜR ARCHAEOLOGISCHE U. NATURHISTORISCHE SAMMLUNGEN
empfohlen durch die HH Professoren Dr L. Rütimeyer u. F. Desor
MODEL einer PFAHLBAUTE nach Herrn Dr FERD. KELLER, construirt v. M. GÖTZINGER
Max Götzinger, Freistrasse, Basel.

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the artist," not to mention the expense of transport. The two most expensive pieces, because the largest, were the Coliseum and the Pantheon. Rost offered them for approximately 150 or 180 sovereigns. More modest in price were the Arch of Constantine and the Theater of Marcellus, and cheapest was the Forum of Nerva. One could save a lot by ordering the whole set of thirty-six different models. The Pantheon model offered by the art dealer Rost must have looked rather like the one in the collection in Schloss Aschaffenburg (figure 195), which was made by the building commissioner Carl May (1747–1822).[42]

In my opinion, the impulse that made cork models of antiquities the most expensive and most sought-after small copies in the 1760s and 1770s came from Paestum. The Greek temples of Paestum were the great rediscovery of these two decades. The educated world was hit as by an electric shock by the news that southern Italy had genuine Greek temples, and had hosted a legitimate diaspora of Hellenic Greece; in the moors close to the shore of the Gulf of Salerno not far beyond Naples, what travelers had hardly dared to hope had thus become suddenly attainable.

It was not a small matter that Giovanni Battista Piranesi, already gravely ill, finally drove to Paestum in 1777, one year before his death. In his *Parere su l'architettura* (1765) he had made it clear enough that his ideal was not Greek but Roman architecture, and in his text for the *Cammini* (1769) he underscored this preference in a critique of the taste of present Greece. Therefore, his late visit to the Gulf of Salerno was a signal of a readiness to revise his view. Being the most prominent opponent of the "Greek craze," he staged this revision with genuine *grandezza.* First, with his son Francesco, he turned openly and without prejudice to the rediscovered temples and for the last time produced a magnificent new series of drawings representing them; second, he took on this trip Augusto Rosa, one of the specialists in the new technique of cork model building, the so-called phelloplastics.

Clearly, model building did not first become significant in the eighteenth century. From the time of antiquity until the Baroque, however, it was merely a visualization tool for the architect. Only in the second half of the century of the Enlightenment, that is after 1750, did the model rise from its exclusively ancillary function to a rank similar to that of the realized building. Indeed, those of the revolutionary period who deserved to be called "mod-

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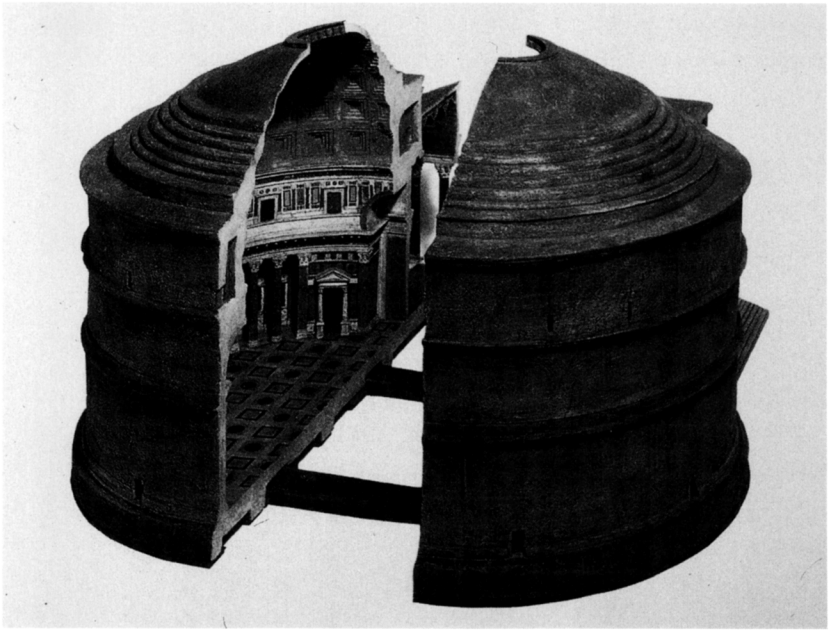

195
In 1786, the Leipzig art dealer Rost offered for sale "Monuments of Italy, Modeled in Cork." His halved, pull-out Pantheon must have looked like this one in the collection of Schloss Aschaffenburg, made by the building commissioner Carl May.

ern" in the narrow sense often considered it *more* important. This change in the valuation of imagining (model) and realizing (execution) has various consequences. One is that, from about 1750 on, the executed building, be it large or small, took on a modellike quality; and this is true even today.

Goethe took a lively part in this higher appreciation of the model and of the model idea as product of the "power of the imagination." An important occasion in his life, his arrival in Rome on November 1, 1786, makes this clear. "Finally" he reached there after a journey "passing through the underworld." "Only under the Porta del Popolo was I sure I had Rome in reality." But what he now "has" he already knew a long time before—through the mediation of the model. "The first engravings I remember clearly (my father had hung a view of Rome in a vestibule), I now see in reality; and all that I have long known through paintings, engravings, woodcuts, and models in plaster and in cork, now stands together before me. Wherever I go I find an acquaintance in the new world, everything is as I imagined it and everything is new."[43]

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However, to find discerning buyers, a model such as May's Pantheon not only has to be based on exact proportions but has to offer also a view of the interior. May cuts his temple model in two along its longitudinal axis with one single stroke as if it were an apple or a pear. Two slide bars, which actually disturb the illusion of being before an antiquity, make the view into the interior possible. This is a kind of surgical incision, but it is justified by the demand that a true friend of antiquity must be as aware of the temple's interior as of its exterior.

More remarkable is that the Pantheon model cut in half was actually built in the eighteenth century as an isolated half, and in the most prominent place in Paris for the most eminent goal, as an instruction hall for surgery at the Sorbonne (figure 196). What the medical professor demonstrates on a patient or on a corpse has to be watched from as close as possible. Thus the *amphithéâtre de chirurgie* emerged as a new building type in the round with steeply staggered ranks of seating. The architect Jacques Gondouin was the first to aim not at the usual three-quarters circle but at the half-circle, like the Pantheon cut in half for the purpose of a cork model. Due to his good relations with the king, in 1767 Gondouin received from the surgeon La Martinière the commission for the Ecole de Chirurgie and succeeded in making the new building genre into a sensation. At least this is how his contemporaries felt. J. F. Blondel called Gondouin an *homme de génie,* his work was viewed as an *exemple inattendu;* later, together with Soufflot's Ste.-Geneviève, it was counted among the buildings that completed the transition from the *goût affecté* to the *goût sévère.*[44]

Gondouin realized that a vertically halved Pantheon would solve his task most appropriately: the lecturer should have no members of the audience behind his back or in a *profile perdu* because they would not see his demonstrations completely. The plain and cold purpose of the *amphithéâtre* also gave him the opportunity to fulfill the secret wishes of his generation in an unexpected place. Thus, since this is a medical auditorium, he can easily take the liberty to imitate the oculus and the coffered ceiling of the antique Roman Pantheon, yet simply leave out the column order and leave the straight wall in the back and the cylindrical wall behind the rows of seats completely bare, in a clearly provocative manner. For bareness combined with geometric purity was the goal of the *goût sévère,* and Gondouin was allowed to venture anything, since a medical auditorium is not bound to any classical columniation.

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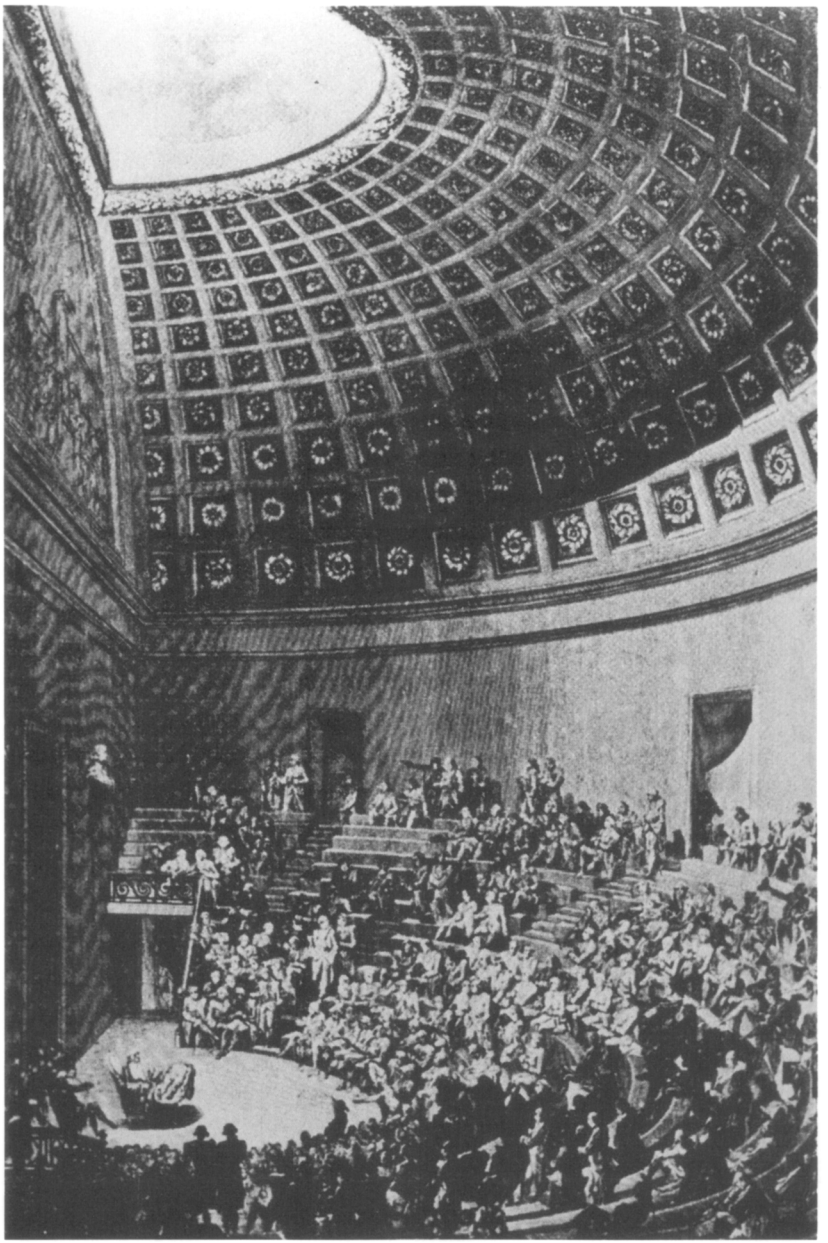
196
Twenty years earlier, the Pantheon cut in half existed as an actual building: the demonstration hall for surgery at the Sorbonne in Paris, built by Jacques Gondouin, 1767.



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Schloss Aschaffenburg also contains a model of the remaining ruins of the Temple of Vespasian and Titus, consecrated in A.D. 81 by Domitian (figure 197). The model builder was again Carl May, and he again adheres to a Piranesi engraving. In his *Tempio di Giove Tonante* (Temple of Jupiter the Thunderer) Piranesi presented one of his motifs especially drastically: the antique column sinking into the dust and debris of the following centuries (figure 198). Just as rising water reaches the chest of a nonswimmer and threatens to drown him, the refuse of later descendants rises to the chest of the noble witness and threatens to engulf it, to suffocate it with dust. As usual, May completes his transposition into the third dimension with the kind of perfection that is close to pedantry. He leaves out everything that Piranesi communicates by his reference to known topography. He concentrates on the surviving three columns and their entablature, achieving a heightening of perception that draws one irresistibly to the changing surfaces.

Seventy years later, around 1870, at the time of lake-dwelling fever, the model builder's subject matter changed abruptly, and in a way that would have seemed inconceivable to a phelloplasticist from Piranesi's generation such as Augusto Rosa. Now, the beginning of things is no longer embodied by the Egyptian pyramid or the temples of Paestum; *no longer by columns on the ground but by piles in the water.*

In less than a hundred years the scope of perceptions and emotions regarding the primitive and original has changed glaringly. The beauty and dignity of the column shaft and its fluting, of its capital and volutes, is now a *headless* stake on top of which has been placed a grate. The former melancholy sinking down into the dust of banal descendants is now a vital rising from the water. Not exactly like Botticelli's *Venus* (which, as it happens, was a favorite in the 1870s and 1880s), but as unexpected evidence for the natural scientists who see life emerging on land from the water (figure 199).

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197, 198
Piranesi's representations of ancient Rome sinking under the dust of later centuries (198) often served as a motif for cork models (197).

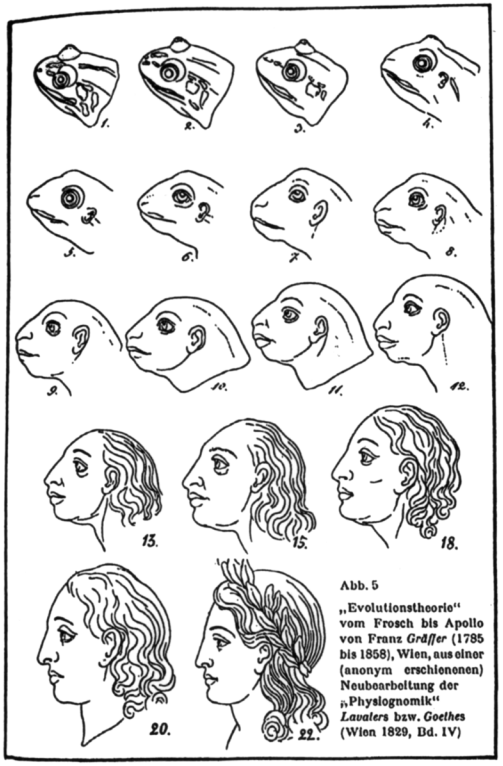

Abb. 5
„Evolutionstheorie" vom Frosch bis Apollo von Franz *Gräffer* (1785 bis 1858), Wien, aus einer (anonym erschienenen) Neubearbeitung der „Physiognomik" *Lavaters* bzw. *Goethes* (Wien 1829, Bd. IV)

199
Franz Gräffer, *From the Frog to Apollo,* from an (anonymous) new edition of Lavater's *Physiognomik* (Vienna, 1829).

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At the Exposition Universelle in Paris in 1867, Switzerland was not only represented to the same extent as other small European nations, but in addition was invited to exhibit in the innermost circle of the building. The reasons for this were the lake-dwelling discoveries in the 1850s and the resulting lake-dwelling fever, which had an effect far beyond Switzerland's borders.

Napoleon III chose as the site of the Exposition the Champs-de-Mars, located between the Seine and the Ecole Militaire. Frédéric Le Play, the director, chose for its basic form a hall system of seven concentrically running galleries, straight in the middle part and half circles at the ends. The high-minded words of the visitors' guide announced: "To make the circuit of this palace, circular, like the equator, is literally to go around the world. All people are here, enemies live in peace side by side. As in the beginning of things on the globe of waters, the divine spirit now floats on this globe of iron."[45] (*Faire le tour de ce palais, circulaire come l'équateur, c'est littéralement tourner autour du monde. Tous les peuples sont venus: ennemis vivent en paix côté à côté. Ainsi qu'à l'origine des choses sur l'orbe des eaux, l'Esprit divin plane sur cette orbe de fer.*)

In fact, next to glass, iron was the most important building material for the seven gallery circles. The next-to-last one (twice as high as the rest), the gallery of machines, soon became the most prominent. The central oval was an open garden with palms and sculptures. The two galleries in the middle, being the "heart" of the giant iron circle, were reserved for the "History of Work" (*Histoire du Travail*) and for the visual arts. Before the "History of Work" were located the "Prehistoric Promenades" (*Promenades préhistoriques*), with glass cases containing the newest findings from the earliest epochs discovered at that time. Gabriel de Mortillet was director of these "Materials of the Primitive History of Man" and the author of *Promenades préhistoriques.* The Swiss collection was the fourth largest, after those of France, Württemberg, and Hungary. The *Catalogue général, Section Histoire du Travail* notes that the following collectors participated: for the Stone Age Clément (St.-Aubin) and Messikommer (Pfäffikon); for the Bronze Age Schwab (Bienne), Desor (Neuchâtel), and Ritter (Neuchâtel); and for the Helvetian epoch Schwab and Desor.

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Collectors from the lakes of Neuchâtel and Bienne are clearly in the majority, and one of them interests us especially, Monsieur Guillaume Ritter, engineer from Neuchâtel. He is the father of William Ritter, who became LC's most important correspondent from 1919 on and who, next to Auguste Klipstein, may be considered his closest and most faithful friend. The elder Ritter was one of the best-known hydraulic engineers of western Switzerland, trained in Paris, active in the first Jura water correction, but above all creator of the water supply of La Chaux-de-Fonds, which had caused problems for many decades due to seeping water in the limestone formation. These problems Ritter definitively solved in 1887.[46] The populace erected a monumental fountain in his honor at the head of Rue Léopold Robert, which catches the eye of every visitor to La Chaux-de-Fonds and was dedicated on November 27 in LC's year of birth (figure 200).

Guillaume Ritter not only collected lake-dwelling findings but also had something to say about them. One year before the Exposition Universelle, he gave three short talks on problems of early history at the First Paleoethnological Congress (Premier Congrès Paléoéthnologique), which met on August 25 and 26, 1866, in Neuchâtel. The subjects of his lectures were a mysterious bronze instrument from Chevroux, a method to date found objects covered with lime sediments, and the pathological deformation of a skull.[47] Ritter was in fine company during his appearance, as Carl Vogt and Gabriel de Mortillet spoke immediately ahead of him. Vogt also spoke on a skull found near the Lake of Morat, de Mortillet on the theme "The Cross in Prehistoric Times—the Cross Sign of Christianity."[48] With the two volumes of his *Vorlesung über den Menschen, seine Stellung in der Schöpfung und in der Geschichte der Erde* (Giessen, 1864) Vogt became a likely contributor to the Neuchâtel congress, since in these works he treated the lake-dwelling discovery at considerable length and positively. He also took a stand on the theory of types and the split in it caused by Cuvier and Geoffroy, taking Darwin into account (*On the Origin of Species by Means of Natural Selection* had been published in 1859, seven years before the congress). Carl Vogt says: "Darwin's theory throws the Divine Creator and his interventions out the door without the slightest . . . hesitation. . . . Thus man turns out to be only the highest product of animal breeding."[49]

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200
The dedication of the monumental fountain in La Chaux-de-Fonds, 1887, in honor of the engineer Guillaume Ritter. His son, William Ritter, was LC's most important friend next to Auguste Klipstein.

COURONNE OFFERTE A Mr G.RITTER PAR LES MÉN RES RECONNAISSANTES.
CIGAR
G. RITTER
Souvenir de l'Inauguration des Eaux à la Chaux-de-Fonds. le 27 Novembre 1887.
CHAUX-DE-FONDS Leon Metzner fils SUISSE

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The president of the congress was Edouard Desor. In his opening address he welcomed guests from France, Germany, Belgium, England, the United States, and Switzerland, and in his final summation he undertook to assess the special archaeological significance of the Lake of Neuchâtel. The last task of the congress was to select the commission for the Exposition Universelle to be held in Paris in the following year. To judge from the protocol, the collaboration between the exhibition organizers in Paris and the Neuchâtel researchers was smooth and friendly, especially that between Desor and de Mortillet. The resulting impression is that the *Promenades préhistoriques* planned by de Mortillet for Paris had been substantially outlined and discussed at the Neuchâtel meeting. It would be no surprise if someday evidence was found that de Mortillet derived his rather unusual title *Promenades* from his trip to Neuchâtel, because it was here, in the region of the lakes of Neuchâtel, Bienne, and Morat, that Rousseau had found a sanctuary, was chased away again by the citizenry, and finally found safety on lonely St. Peter's Island in the Lake of Bienne (autumn 1765). There he began his walks and botanical explorations that developed into the *Rêveries du promeneur solitaire.*

Half a century later, in geographic proximity to Rousseau's St. Peter's Island promenades, William Ritter came to live. At the outbreak of the war in 1914 he had had to return from eastern Europe to his hometown of Neuchâtel and took up quarters in the small town of Le Landeron, roughly midway between St. Peter's Island to the east and La Tène to the west (figure 201). It is a fact that LC—who introduced the concept of the *promenade architecturale* as a law of peripatetic appropriation in architecture and returned to it again and again[50]—during the war and especially in 1915 was often Ritter's guest, and both men frequently started out from there to find spots to paint watercolors, as for instance on the shore at La Tène.

The Swiss government could not escape the effect of the lake-dwelling fever and the impact of the Paleoethnological Congress. Therefore, the Swiss Federal Council commissioned Neuchâtel painter Rodolphe-Auguste Bachelin to paint two paintings for the Exposition Universelle that accompanied the archaeological findings and were supposed both to elucidate them and to tie them to the overall concept of the exhibition. In fact, Bachelin succeeded in creating a plausibly realistic rendering of the everyday life of the

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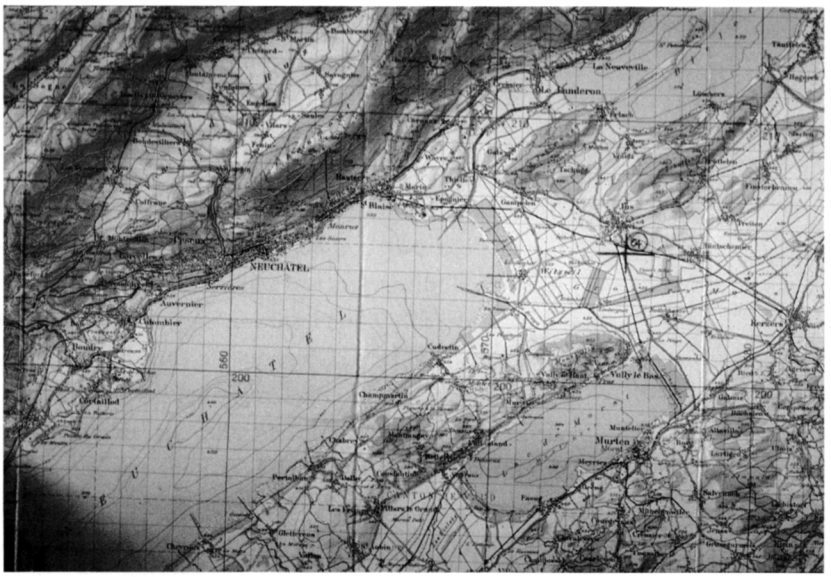
201
The Lake Region, with a detail of the area between the lakes of Neuchâtel and Bienne. At the outbreak of the war, William Ritter had to come home to Neuchâtel from Eastern Europe and moved to Le Landeron between the two lakes, where he was often visited by LC.



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lake dwellers. Desor aided him with professional advice, and perhaps this is the reason why both pictures are marked by a didactic bent. This is apparent especially in the intention of representing in the first picture the Paleolithic period and in the second one the Bronze Age; the *Catalogue général* for the *Histoire du Travail* mentions in its first lines on the Swiss contribution: "View of a lake-dwelling settlement of the Stone Age; lake-dwelling settlement of the Bronze Age, at the La Tène site at the northeastern end of the Lake of Neuchâtel, by Mr. A. Bachelin, Neuchâtel" (*Intérieur d'un Village lacustre de l'âge de pierre; Village lacustre de l'âge du bronze (vue prise à la station de Le Tène, extrémité nord-est du lac de Neuchâtel, par M. A. Bachelin à Neuchâtel*).[51] Consequently, Bachelin had to take into account specific geographic conditions and features characteristic of these two epochs, and he seems to have accepted this willingly. He viewed himself as a historical painter anyway, and his second profession was that of historian of his native region, for which he attained a considerable reputation.

Precisely because the didactic bent (which later led art historians to speak of "painting for the school walls") is not denied in advance, it does not adversely affect the artistic value of the two pieces. Nevertheless, the affiliation of lake-dwelling fever with pedagogic didacticism is striking. As far as I know, among archaeologists today only Christin Osterwalder-Maier and Hans Trümpy have taken a closer look at this phenomenon, which we will discuss later.

In the first picture, *The Stone Age* (figure 202), Bachelin surprises us with a contrast between disorder and order, between negligence and solidity. The pile-work understructure is shown as something solid and well made, in the four sturdy diagonal scaffolding supports, for instance. However, the huts on the platform seem like a shantytown, mere sheds or shelters for the homeless, looking thrown together messily by accident, without a sense of a finished whole or total form. Amid this contrast, the lake dwellers seem to feel thoroughly comfortable and undeniably show a certain grace, as embodied by the young mother next to her fishing companion in the foreground. Michel Egloff informs me that another work by Bachelin on the Stone Age appeared on the art market in 1992; in it the same contrast is reconfirmed (figure 203).[52]

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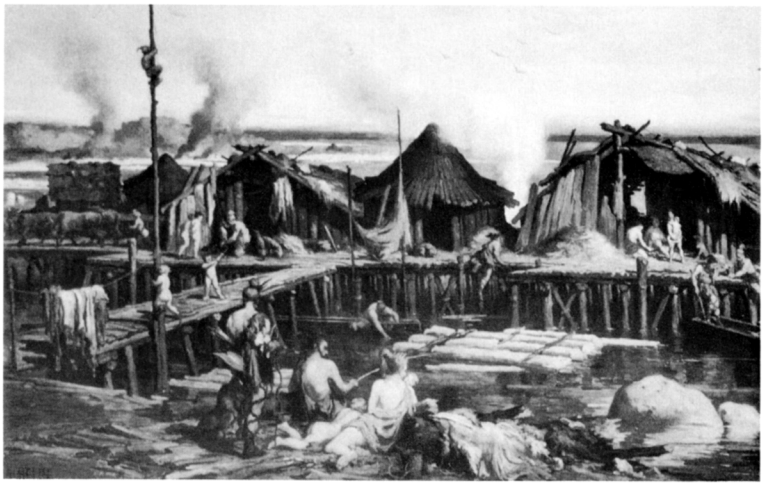
202–204
Consequences of the lake-dwelling fever: the Swiss Federal Council commissioned Rodolphe-Auguste Bachelin to represent Switzerland at the Exposition Universelle in Paris 1867 with two paintings. The first shows the Stone Age of the lake-dwelling culture (202), the second the Bronze Age (204). A further work of Bachelin on the theme of the Stone Age appeared on the art market in 1992 (203).



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Only through Bachelin's *The Stone Age* does one realize that the rest of the painters of lake-dwelling romanticism all appear devotees to order and cleanliness, and increasingly avoid Bachelin's forceful invocation of prehistoric nonchalance like a taboo. This is rather unexpected. One might have expected earlier lake-dwelling painting to be strongly colored by Rousseauism, and therefore to show first the "good," and hence also clean and orderly, primitive man, whereas later, with the increasing influence of Darwin and his followers, an increasingly disillusioned and uncouth conception of the primitive might have gained prominence. But the opposite is true. In 1866–1867, presumably under Desor's influence, Bachelin assumes an emphatically unrefined and raw air, whereas later painters actually practice a kind of romanticism in the sense of Bandi and Zimmermann's term, which I would rather define as overidealization along Rousseauist lines.

Bachelin's second work, *The Bronze Age* (figure 204), shows a more civilized lake-dwelling settlement at a farther remove from the shore, but the difference in what at that time was called "moral conduct" is especially clear in the group of people in front on the right, who stand out as far removed from their Stone Age ancestors. Evidently trading is in progress, for a standing man holds up a piece of fur while the kneeling man next to him shows off some jewelry, attentively judged by three ladies. Are coins already in use here? At La Tène, Desor had discovered some coins in the ground of the lake and had judged them as belonging to the Bronze Age.

Paintings by Karl Jauslin (1891; figure 205), Alfred Marxer (about 1900; figure 206), and Edouard Elzingre (before 1900; figure 207) reinforce our observation that toward the end of the century the clean and orderly gains dominance, while Bachelin's impressive invocation of barbaric rawness, unrefined and crude, is forgotten or repressed. The compositions and qualities of these three painters may be different, but in their message—again markedly pedagogical—they all agree: first, the lake dwellers live self-sufficiently and are independent, that is, are autarchic; second, they live hygienically; and third, they seem not to be driven to own property on land, either in the forest or the fields. Certainly, they have to tend plants in order to harvest some fruits because they cannot live on fish alone. But these gardens and fields can be located anywhere and hardly rouse the people to demand aggressively, *Ceci est à moi.* Thus, by another route, starting not in the forest

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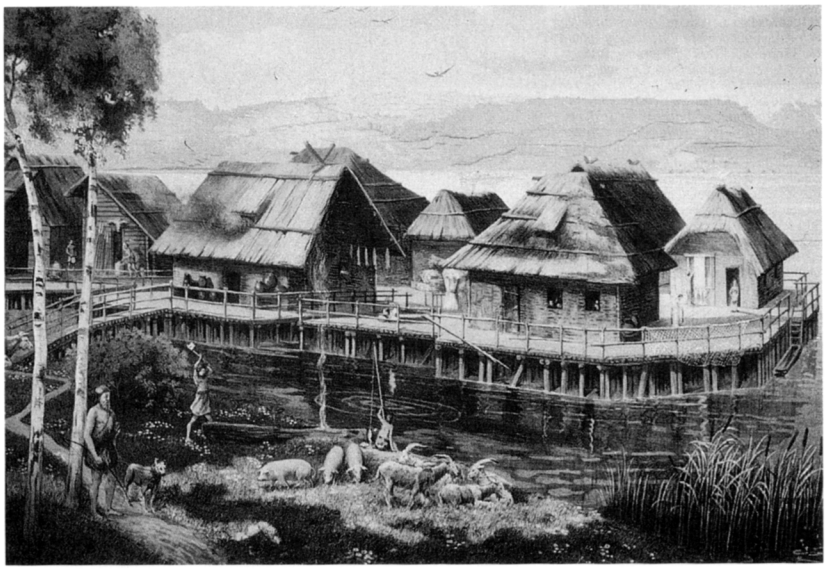
205–207
Paintings by Karl Jauslin (205), Alfred Marxer (206), and Edouard Elzingre (207) show that around the turn of the century the clean and orderly version of primitivism became dominant, and the raw and vigorous one, as Bachelin had impressively articulated it, receded.



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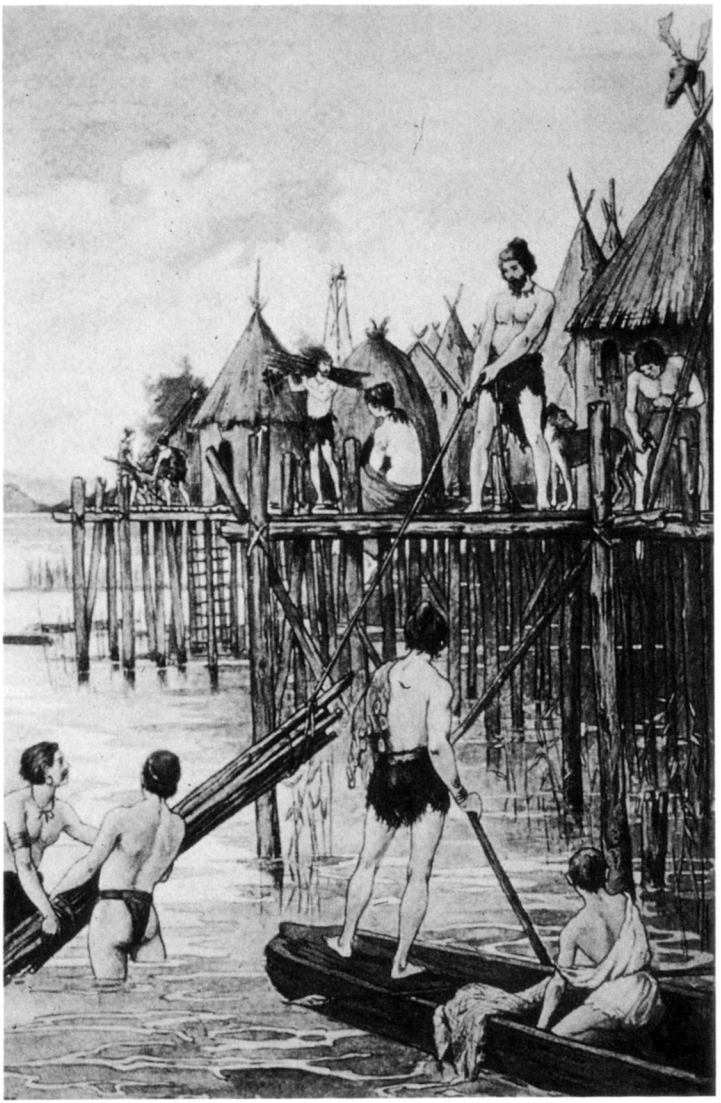

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but from water, we arrive again at the qualities of a primeval way of life such as Rousseau sought in 1755 "deep in the forest" of Saint-Germain: "There I found the picture of primeval time, whose history I boldly outlined."[53]

If the lake dwellers' settlements had been discovered in Rousseau's lifetime, they would certainly have interested him because of the people's self-sufficiency, hygiene, and disinclination to own property, and also because of the insularity of their settlements. As an exile and refugee in the Neuchâtel Jura, Rousseau himself showed a preference for insular existence, deciding to stay on St. Peter's Island although he was offered other choices. It is not accident but symbolic congruence that he is buried on an island, namely, on the little island wrapped with poplars near Ermenonville.

A person who lives on or above water deviates not only from the notion of a property owner but also from the conventional conceptions of cleanliness and hygiene. The disposal of excrement seems solved by itself, possibly even better than through all the enormous sanitation efforts of the nineteenth century, with its varieties of water-closets, showers, and baths, and systems of water and sewer mains. Of course, this kind of disposal is not indicated in the lake-dwelling models or shown in the paintings. But the excretory tract and the moral and hygienic ideas of cleanliness and purity connected with it, as generally known, have all the more power over our evaluation of spatial situations the less they are spoken of.

Coming recently across a newspaper report that the city government in Singapore rules under the motto "clean and green," I wondered that the "Green" parties have not discovered how close the lake-dwelling settlements come to their ideals. To be sure, it would be dangerous to draw political capital from this comparison in southern countries, because there, as noted above, the poorest of the poor live on pile-work.

With regard to the lake-dwelling fever that afflicted the second half of the nineteenth century, one can say that the contrast between lifestyles could not be more drastic. Never before had Europeans behaved as arrogantly; industrialization and colonization brought triumphs and inflicted irreversible damage to colonized continents. Compared with this, lake-dwelling life was a dream of the most benevolent magic: these settlements seemed to omit everything that the hectically driven nineteenth century undertook. And the lake dwellers seem to be allowed to do everything that to the Westerners of

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the time seemed imaginable *only* on the farthest island. In a place and time where the *orbe de fer,* the "planetary circle of iron," had definitively displaced, surmounted, or disempowered the "planetary circle of water" (*orbe des eaux*), the contrasting vision reached delirium: lake-dwelling fever.

Untouched by this kind of polarization appears Albert Anker (1831–1910). Six years after *The Stone Age* by his friend and academic colleague Bachelin, he paints something like a minimalist version of lake-dwelling life (figure 208): fewer than a dozen raw timber logs for the platform, beneath a narrow pale blue strip of a water view, suffice to transport the observer into early times. A mother sits next to the hut wall, holds her child in her lap, and looks at the lake on which there is nothing more to be seen than some bamboo and, farther out, a fisherman in a boat. Her summer clothing is unobtrusive, could be from any period, even today's. Only the jewelry in her hair, on her neck, and at her wrist has a similarity to what was dug up at the sites of the Lake Region. Anker does not feel obliged to decide between the originally good and the barbarically raw primitive man; his answer is that a human being is simply a human being.

This picture is a stroke of luck for the rather uneven bulk of painting of lake-dwelling romanticism, and it is also—something that until now was not clear—a stroke of luck in Anker's own oeuvre. Anker, a former student of theology who was trained as a painter in Paris, achieved his considerable regional fame with paintings that depicted the life of farmers in the Lake Region. He is a second Leibl, a Leibl of the mixed culture of the borderland of two languages that runs in many directions across the whole of Switzerland, and he is not very far removed from Leibl in terms of generations. As with Leibl, Anker's problem is an overelaborated praise of origins, which can change quick as a wink from touching faithfulness of observation into a most disquieting object fetishism. In the painting *The Lake-Dwelling Woman* (*La lacustre*) of 1873 he is able to free himself from this cramp. There we see no tiled ovens, no tasseled caps, no spinning wheels that block the flow of the composition with their angled rigidity. Anker suddenly drops his permanent inventory of hearth and home and, liberated by his leap across time, describes only what counts: the peaceful embrace of mother and child, the lost profile of the mother's face looking out over the expanse of water. The picture was bought by no less a client than the city of La Chaux-de-Fonds,

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208
It was Albert Anker, of all people, a painter whose glorification of farm and home moved between the saccharine and the overly reticent, who produced the third most significant statement next to Bachelin's: *The Lake-Dwelling Woman* (*La lacustre*), 1873; a stroke of luck, even in his own body of work.

or more precisely by the newly founded Société des Amis de l'Art.[54] Thus *La lacustre* becomes the town's first museum piece, its first art purchase.

The motif is surprisingly successful, and what never happened with another painting of his happens now: Anker is asked by museums and collectors at home and abroad for copies. As a letter of 1899 vividly proves, the painter is thrown into conflict, fights with his conscience twenty-six years after the sale of the original to La Chaux-de-Fonds: "I wish the devil would take Mr. Wenger. From England he brings pictures which should have stayed there. I had the ill luck to paint this *Lake-Dwelling Woman* three times at an interval of several years; I was asked at least twenty times to copy it. I had painted it for the fat English merchant Wallis, who said he would send it to America—but a Swiss comes along and buys it. But the first *Lake-Dwelling*

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Woman is sold to La Chaux-de-Fonds where it hangs in the museum. It is bothersome that there would be a second one in another Swiss museum, and thus everyone can see how I repeat myself. Naturally, it is painted from a live model. . . . I am delighted by the news that the Bernese have no money to buy it."[55]

Anker's wish to have this prevented was not fulfilled. The Bernese wanted this repetition and they got it—the *Lake-Dwelling Woman* is to be seen in both museums. It is not astonishing that with the fin de siècle, salon painting too discovers the lake-dwelling theme. Self-alienated civilizations ceaselessly examine the horizon for a place where play and dreams can be connected and reconciled with work in a more natural way than in western Europe or North America.

A large painting, today preserved only as a lithograph but hung on the wall of the Sorbonne until 1929,[56] thematizes the restlessness and desire of a group of women at the return of the men from the dangers of the hunt (figure 209). The Parisian painter Paul-Joseph Jamin shows every degree of expectation, but does not seem aware that he merely transplanted a group of ladies from a Parisian salon to the hard platform. With optical *raffinesse,* Genevan painter Hyppolite Couteau chooses the late evening hour for the return home (figure 210), to bring into play a silhouette-like profiling of the figures. This allows him not only to highlight the imposing back of a man, but also to expose a kneeling, naked young woman in a risky pose. Presumably, the three-part work of the Jurassian Alexandre Girod entitled *Fantaisie lacustre* (1925; figure 211) is chronologically the last example of a large-scale lake-dwelling painting with eroticizing pathos. Framed in the pile scaffolding, a hefty, graceless woman is busying herself with the newly discovered tool of a mirror. All other figures in Girod's series are similarly occupied by themselves. The community spirit on the artificial island seems to have yielded to solitary complacency. Girod's demonstratively accomplished but empty pathos need not have been described here were it not proof how much the theme of lake dwelling continued to fascinate even as late as 1925, in such a close proximity to LC. Girod, who traveled a lot, lived in Le Locle, sister city of La Chaux-de-Fonds, and was only two years younger than LC (born 1889).

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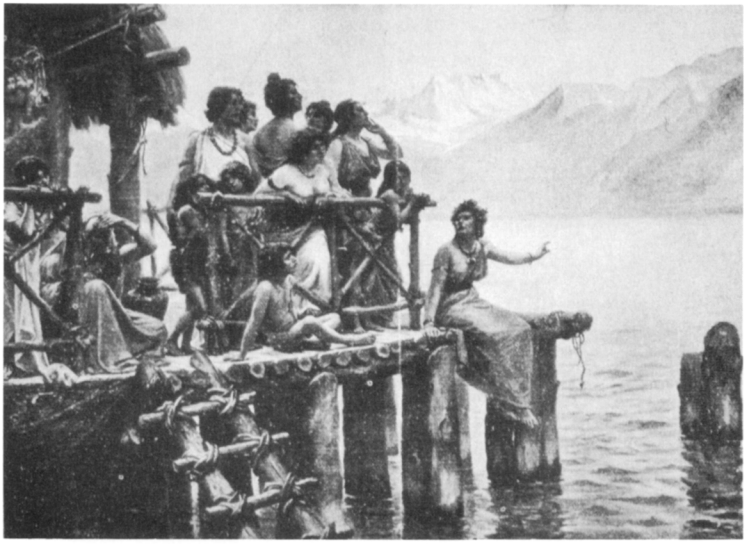
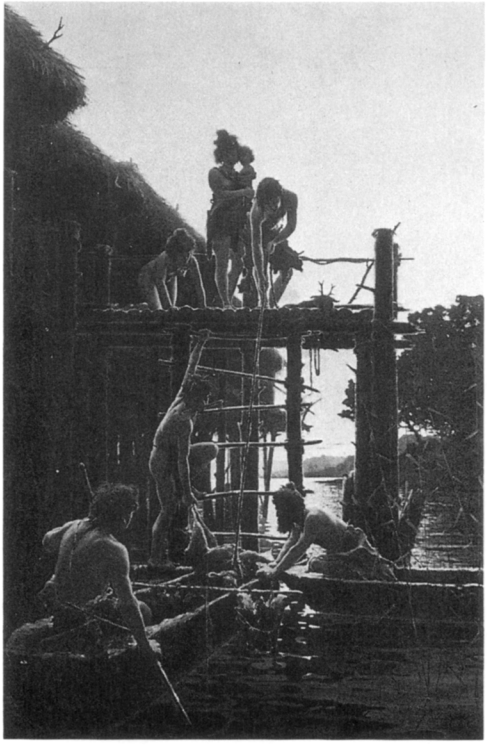
209–211
Erotic overtones could not be excluded from the theme of life on dwellings over the water. Paul-Joseph Jamin shows a group of Parisian ladies transplanted to the rough platform (209). Hyppolite Couteau's rendering of the same theme of returning fishermen seems convincing alongside the lake-dwelling model at the Geneva Historical Museum (210). Alexandre Girod completely isolates the figures from one another (211).





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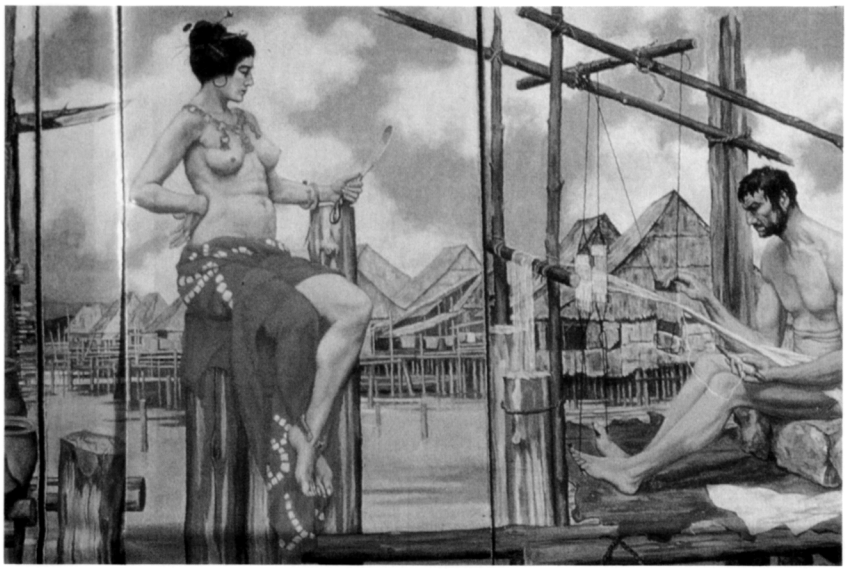

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PART V LC's Early School Years and Their Dreams of Primary Origins

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Most painters of lake-dwelling romanticism belonged to the second generation after the discovery of 1854, but we now turn our attention to the third generation, the one to which LC belonged. The school years of the two Jeanneret brothers, Albert, the older, and Charles-Edouard, begin in an unusual way, one quite novel for La Chaux-de-Fonds of that time. Both brothers were registered by their parents in the then newly founded *Ecole particulière de Mlle. Louise Colin* or *Ecole enfantine froebelienne* (Froebel kindergarten).

LC's father wrote in his diary on August 31, 1891, "Our two boys begin their schooling at the Froebel school of Ms. Colin" (*Nos deux garçons commencent l'école chez Mlle. Colin—Ecole Froebel*).[1] Born on October 6, 1887, Charles-Edouard was not quite four years old when the school began in late summer.

Until now, in the literature on LC his early school memories have been completely neglected. But if we take into account the prodigious memory for which this artist is known and his evident repeated working through of problems and leitmotifs over more than several decades, we must accord them greater significance than previously acknowledged.

Marc Solitaire (Marseilles) deserves our special gratitude for his study of LC's years at kindergarten and their aftereffects: "Le Corbusier et l'urbain: la rectification du damier froebelien" (LC and Urban Architecture: The Rectification of the Froebelian Chessboard), which I find one of the more important contributions published on the occasion of the centennial in 1987.[2] Although Solitaire's title sounds somewhat tame and he focuses almost exclusively on the urban consequences of his findings, his presentation and documentation considerably change the accepted profile of LC's youth, even if there emerges only a strange parallel between LC and Frank Lloyd Wright. It amounts to nothing less than the fact that the two most important architects of our century (I might be allowed this grandiloquent formulation in view of the impending close of this century) both had the same basic schooling marked by Friedrich Froebel's so-called gifts. Anyone who takes childhood influences seriously cannot help appreciating the importance of this fact. "So what?" might be the comment of those who give more weight to profes-

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sional than to pedagogical circumstances. Yet—and I am anticipating—the pedagogical use of Froebel's "gifts" is directly and consequently tied to their *three-dimensionality* and to *geometry.* Thus they inevitably implement an architectural training, an architectural training that is literally *avant la lettre.* For it is at the same time a playing with and a constant handling of the basic architectural figures before any letters or numbers appear in the schoolroom and are thrust upon the child as more important.

Before I take up Solitaire's findings and commentary, two more closely related questions have to be addressed. First, how does Froebel's initiative for a general German kindergarten, which he developed in Bad Blankenburg in 1840, reach La Chaux-de-Fonds in the Swiss Jura of all places? And how does it get across the Atlantic and land in the Middle West of the United States where Frank Lloyd Wright was growing up? "Froebel seriously considered moving to Columbus, Ohio, where relatives of the Frankenberg family, bound to him in friendship, had settled."[3] Apparently the Frankenberg family later also tried to bring Froebel's brochures on the "first" and "second gifts" to the attention of the German community in the United States. Both pamphlets, "The Ball as the First Toy for Children" and "The Sphere and the Cube as the Second Toys for Children," were published in four places: Blankenburg and Keilhau in the Thüringer Wald, Burgdorf in the canton of Bern, and Columbus, Ohio.[4]

The proximity of La Chaux-de-Fonds and Neuchâtel to Froebel's ideas has to do with the long stay of the Swiss education reformer Heinrich Pestalozzi (1746–1827) in Yverdon at the western end of the Lake of Neuchâtel. Pestalozzi became the decisive father figure in Froebel's professional career. Froebel was active in 1805–1806 and in 1808–1810, for almost three years in all, at the Lake of Neuchâtel, as a close collaborator in Pestalozzi's institute. His third stay in Switzerland, this time as the head of a reform school in Wartensee near Luzerne and in Willisau, and afterward as the head of a teachers' college in Burgdorf, lasted from 1831 to 1836.

Thus the region of the Lake of Neuchâtel is not only marked by Rousseau's flight to Val de Travers between 1763 and 1765 until he withdrew to St. Peter's Island. Forty years later, in 1804, Heinrich Pestalozzi of Zurich opened his training school in Yverdon and headed it through many crises for twenty-one years, until 1825. Rousseau's influence on his "son" Pestalozzi

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and on his "grandson" Froebel is well known and evident enough. However, in the cultural profile of the Romandie this influence is imprinted with the force of its geographic physiognomy, since each of these three men spent an important phase of his life in the same region, on the same lake.

The second question is, What is a "gift"? Froebel was fifty-five years old when he opened his "Autodidactic School"—a strange name to be sure!—in Bad Blankenburg in 1837; five months later he renamed it "School for the Cultivation of the Occupational Urge of Childhood and Youth."[5] Adhering to Froebel's manner of speaking, we can say that a "gift" is a basic geometric figure that helps a child to unfold his occupational urge in the course of play and thus to educate himself independently, that is, autodidactically. Froebel was the sixth and last child in his family; he lost his mother before his first birthday and was raised by his harsh father, a minister, who was overbearing, indifferent, cold, and discouraging. Froebel had no other choice but to free himself as best he could from the misery of his childhood, yet the astonishing thing is that out of his early suffering he later made a virtue. He declared, with the introduction of the gifts, that the "child's activity" had to be autodidactic. But doesn't this changing of necessity into a virtue sound familiar? Didn't LC, autodidact par excellence among the notable architects of his time, do the same? Didn't he fight against the academies and preach above all for personal experience and self-direction?

The first gift is a *knitted ball* pieced of six colored sections. The second consists of a wooden sphere, a cube, a cylinder, and a cone (figure 212). The third, fourth, fifth, and sixth gifts are *segments* of the basic geometric figures. If we draw these figures in the sequence prescribed by Froebel we notice an astonishingly close parallel to LC's rendition of the *primary geometric forms* that he placed above his sketch of ancient Rome (figure 128).

Froebel put the soft ball first, then the hard sphere, possibly thus according to the sphere the greatest value, and only after that the cube, cylinder, and cone. If we arrange LC's basic forms under Froebel's lineup we notice a correspondence of eighty percent (allowing for the variation of LC's pyramid as equivalent to the cone). What LC adds, compared with his kindergarten teacher, is the parallelepiped, the indispensable basic block of every builder. What he leaves out is the soft sphere. For the generation of classic modernism it would be a waste of time or a bad joke even to think of soft forms

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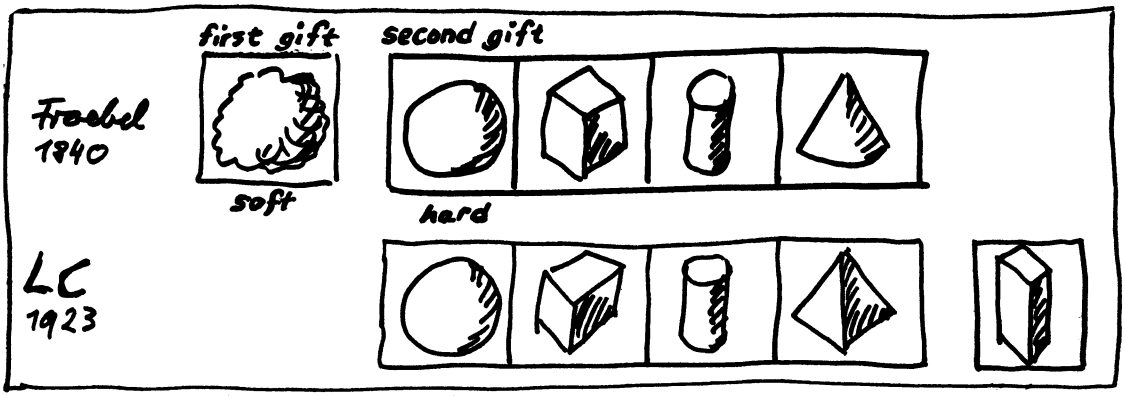

212
The Froebel kindergarten was where LC received his basic geometric-spatial schooling. I propose a comparison between the elementary forms chosen by Froebel for the first and second "gifts" (upper row) and the ones LC later demands in the lesson of Rome (lower row; see figure 128).

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(a knitted ball!) in architecture. But today we have a different situation; "soft" and "hard" have become topics architecture has to touch and does increasingly.

The conclusion is clear: LC did not have to grow old enough to develop an interest in Plato to become acquainted with the *grandes formes primaires* (great primary forms). Just like Wright, he handled them daily (we would say today "conversed" with them daily!), and practiced his "occupational urge" on them as early as kindergarten, before letters or numbers were brought to his attention.

For Froebel these were *body-shaped* gifts; he added to them a second group, *planar elements of play,* and finally "linear gifts of play" and "point-shaped occupational means."[6] All of this suggests an anticipation of what was to occupy Wassily Kandinsky in *Point and Line to Plane* (1926), although, to be sure, an anticipation on an entirely different plane.

Erika Hoffmann, a Froebel specialist, has studied the gifts and made clear how much systematic effort Froebel invested in developing these sequences of perceiving, imagining, and doing (figure 213). Here we must at least mention some of the later effects of Froebel's "Gardens of Children" (as they were first called) with their slogan: "Come, and let us live involved with our children!" That is, he anticipated and stimulated in many ways what was developed sixty years later, from Husserl's phenomenology to Gestalt theory and including Rudolf Steiner's anthroposophy.

In his essay, Solitaire includes an advertisement placed by Mlle. Colin in the newspaper *L'Impartial* on August 17, 1890, and also a handwritten list that confirms Edouard Jeanneret's participation in the final examination in the summer of 1894 at the age of seven (figure 214). This is proof positive that LC attended this kindergarten for three years, from the summer of 1891 to the summer of 1894. Solitaire meticulously describes the children's handling of *the gifts* provided for play. For Froebel, touching is as important as seeing, and each single movement of the fingers, the hand, and the arm in this process is as thoroughly ritualized as body posture was once ritualized in learning how to play the piano.

Like Pestalozzi, Froebel considers these elementary processes down to the last detail. I believe Solitaire is justified in describing the effect of these constant exercises in space along the surfaces and edges of the basic forms

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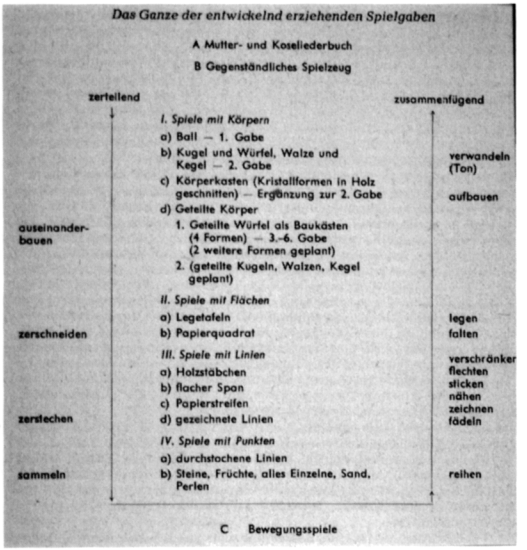
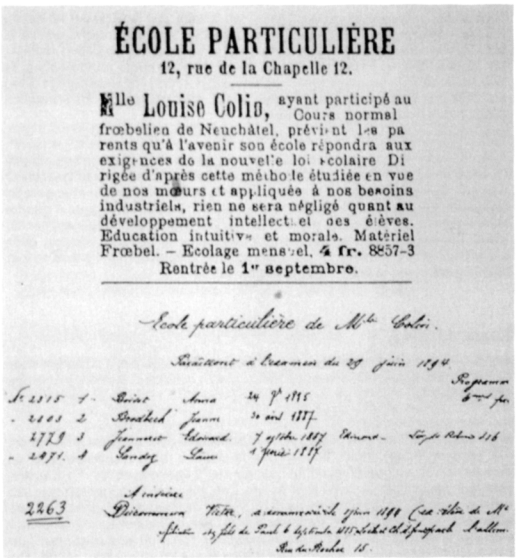
213
The sequence of visual observation, imagination, and praxis according to Friedrich Froebel (as presented by Erika Hoffmann).



214
The Froebel kindergarten in La Chaux-de-Fonds. An 1890 advertisement and the entry recording the participation in the final exam of 1894 of both Albert and Charles-Edouard Jeanneret.


ÉCOLE PARTICULIÈRE
12, rue de la Chapelle 12.
Mlle Louise Colin, ayant participé au Cours normal frœbelien de Neuchâtel, prévient les parents qu'à l'avenir son école répondra aux exigences de la nouvelle loi scolaire. Dirigée d'après cette méthode étudiée en vue de nos mœurs et appliquée à nos besoins industriels, rien ne sera négligé quant au développement intellectuel des élèves. Education intuitive et morale. Matériel Frœbel. – Ecolage mensuel, 4 fr. 8857-3
Rentrée le 1er septembre.
École particulière de Mlle Colin.
Subissent l'examen du 29 juin 1894.
2263

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as a "religion of tactility" (*religion de la palpation*), and his critically setting this concept in quotation marks. I also agree with his assertion that this "religion of tactility" is to be observed also in LC, who practiced it with an extraordinary "subterranean persistence" (*persistance souterraine*). Furthermore, Solitaire maintains that this "Froebelian striving toward the elementary, the rectilinear, and the orthogonal" must be seen as a "veritable trauma," dangerously close to the fanaticism of oversimplification (*l'effort d'élémentarisation, de rectilignisation et d'orthogonalité froebelien . . . un véritable trauma . . . sursimplicité*).[7]

Solitaire's second discovery is writings and diagrams for the walls in the schoolroom by A. Vuagnat of Neuchâtel, shown in the Swiss National Exhibition in Geneva in 1896. They illustrate especially clearly the danger of such a trauma (figures 215). If, as Solitaire reports, Vuagnat's diagrams hung on the wall of practically every kindergarten in the canton of Neuchâtel,[8] why do they frighten one more than Froebel's drawings of the hand at play (figure 217), and more still than LC's schemata or unconscious appropriations of them (figure 216)? (Though today, and for good reasons, LC's schematic urbanism is criticized much more sharply than his individual buildings.) It looks as if Froebel's live spirit of play is lost or arrested when the child's playing hand is not shown or when the three-dimensional rendering turns abruptly into a linear pattern diagram.

For Froebel it was a matter of some consequence that after his stay with Pestalozzi in Yverdon he studied mineralogy (first in Göttingen, then in Berlin), and from 1812 crystallography in particular. In Berlin (1814) he became assistant to the crystallography Professor Weiss. Thus in a way he remained faithful to the dream of his youth of becoming an architect, and what he learned in his training as a forest surveyor (1797–1799) was not lost on him. For him the amplitude of solid bodies remained *primary,* and therefore it belonged at the beginning instead of the end of any school instruction.

One can attempt to understand the quality and the eventual danger of Froebel's influence on someone like Frank Lloyd Wright or LC by taking also into account the "slowing down of perception" that occupied us earlier on.[9] Doubtless, Froebel had just such a slowing down as his aim. The hectic upheavals and crises of the early stages of industrialization in western Europe called for a pedagogue of his cast to make the necessary correction. He slows the hand, he elevates the detail, he examines the nuances, he celebrates

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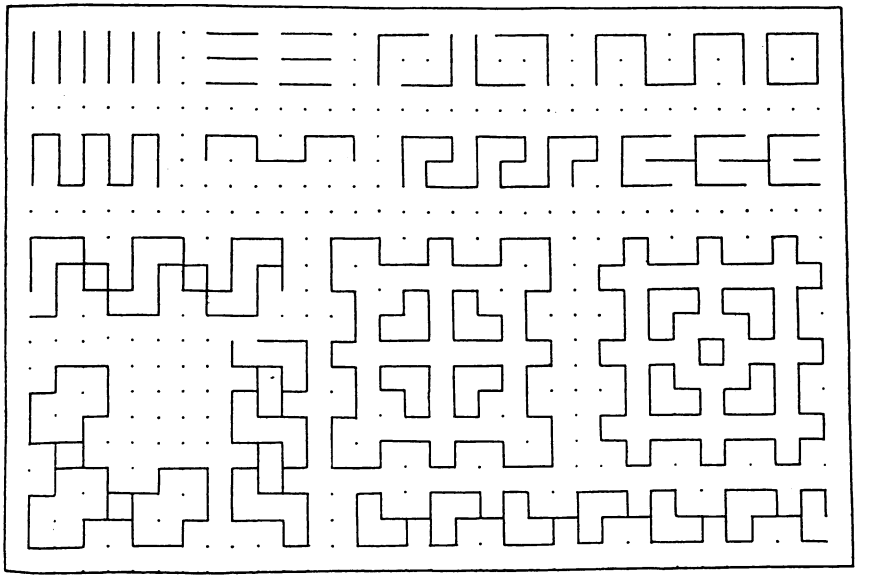
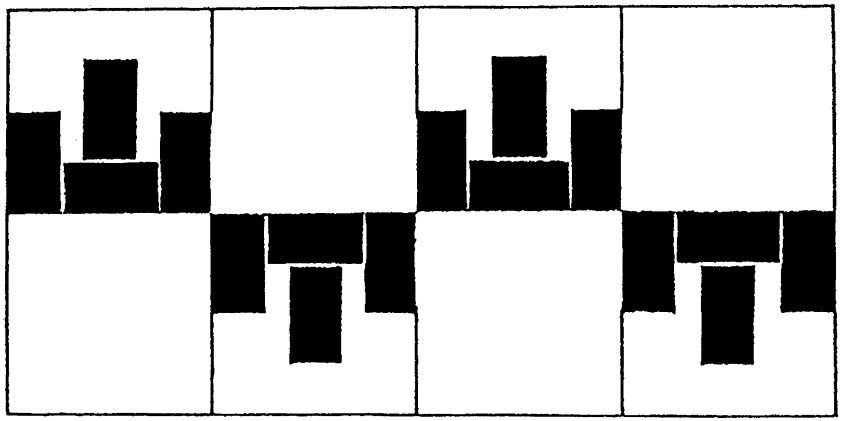
215–217
The Froebel finger exercises along surfaces and edges of the basic geometric bodies—a "religion of tactility"? Two instructional tables by the Froebelian Vuagnat of Neuchâtel (215), compared with LC's *redents* (216). Vuagnat's rigidity and overelaborate schemata can be frightening, while Froebel's own drawings of the hand at play (217) manifest the aliveness of the appropriation of reality through touch. *(continues on following pages)*





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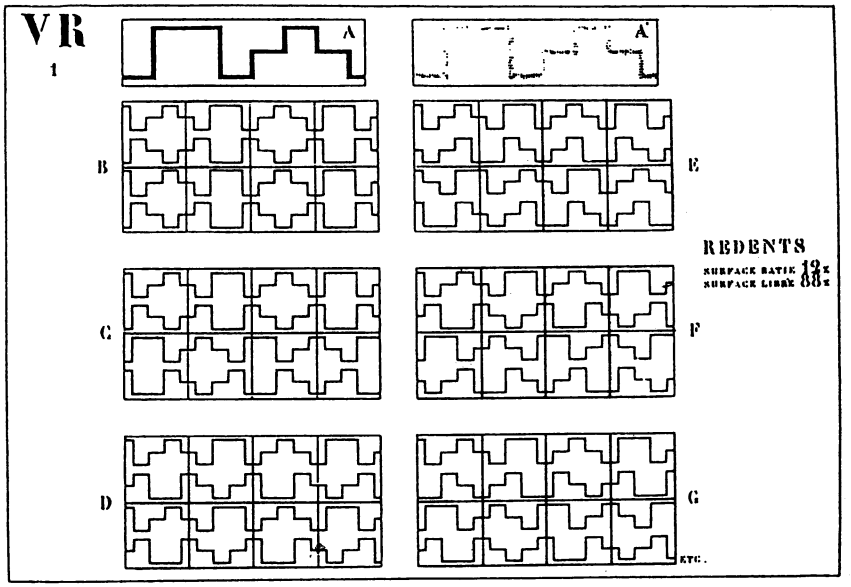

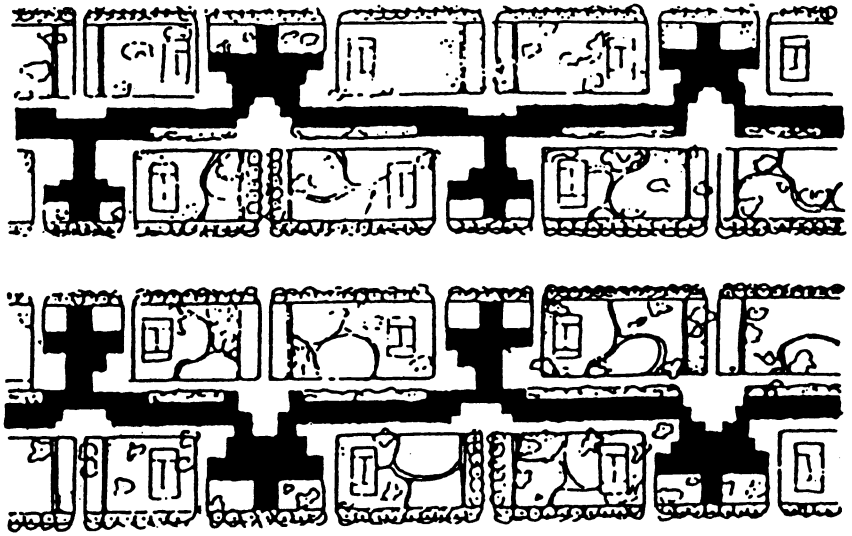

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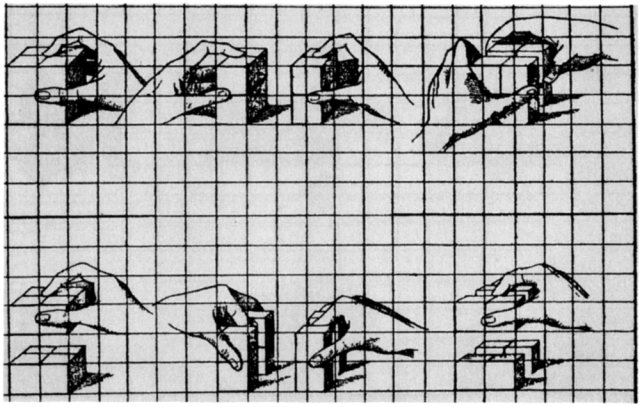

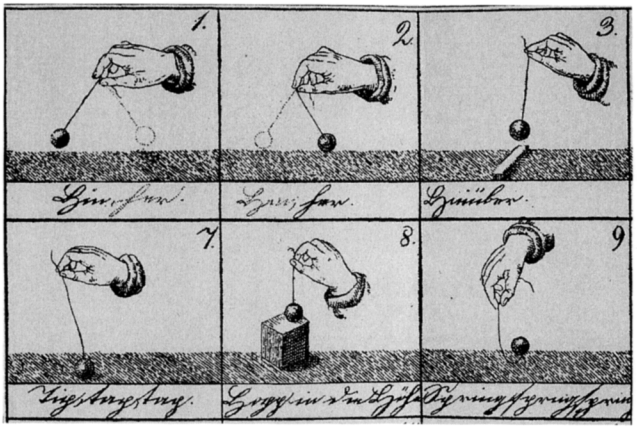

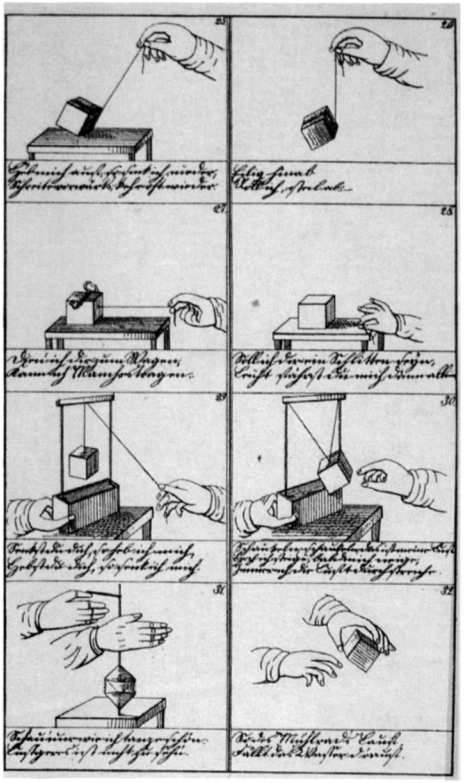

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the meditative touch. However, when this circumspection loses its momentum it easily becomes rigid, heavy, and oppressive, as for example in Vuagnat's diagram poster.

Two monuments were erected to Froebel, a large ungainly one and a smaller but arresting one. Evidently, his relatives and admirers found it indisputable that the geometrically shaped gifts were the paramount feature of his life's work, and these appear in both monuments. But the designer of the monument in Schweina (figure 218) was not aware of the radicality inherent in the elementary forms; they were so unequivocally the bare, pure, and rigorous aspect of primary form in spatial terms that to clothe or decorate this with any surface adornments was bound to appear a misunderstanding, embarrassing or disturbing. A cube or cylinder might, if need be, tolerate an inscription, but it is at odds with a classical slab base and molded profiles, and it mocks a sculptured frame with rosettes in all four corners. Here a stunning either-or challenge manifested itself, to which the designer of the monument proved blind or deaf.

In Bad Liebenstein (figure 219), however, the paramount value of the unclad purity of geometric basic forms is completely clear to the monument's designer: it must be spared any added cover or disguise. Sphere, cylinder, cube, and a slightly inclined gradient toward the base obey this imperative. In addition, the cube is situated to be seen from an interesting angle, namely, across one of its edges, and is underscored by the placement of Froebel's slogan: "Come, let us live involved with our children!" The forest surveyor, crystallographer, and would-be architect Froebel would have been completely happy with this memorial. And oddly enough, when he insisted on investigating Columbus, Ohio, and dreamed "of founding a second Weimar through the joint forces and the collaboration of noble-minded Germans in America,"[10] he hardly suspected that since 1777 a small monument in Weimar had come delightfully close to the monument in Liebenstein: the altar of Agate Tyche (figure 220), erected by Johann Wolfgang von Goethe under the trees of his garden house on the Ilm in memory of his dangerous Swiss journey with Duke Karl August.[11]

To sum up, Rousseau would certainly have been less astonished by the developmental direction of his "son" Pestalozzi than by that of his "grandson" Froebel. Froebel's obsession with geometry is indeed neither self-evident nor

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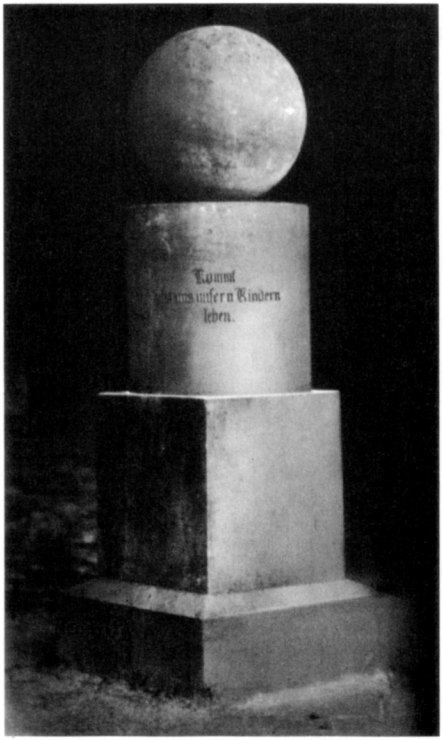
218, 219
Froebel received two memorials, one that was ungainly in its proportions (218) and another well-proportioned one (219).



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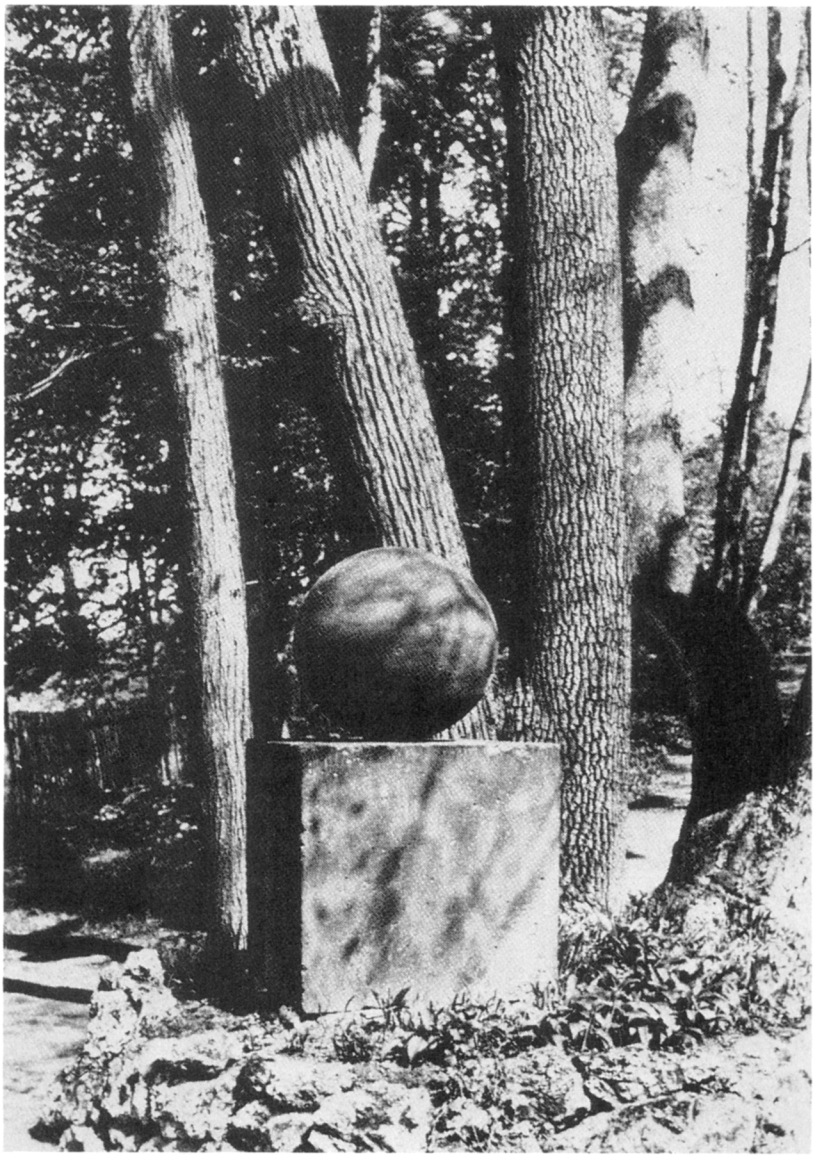
220
Was the admirably proportioned Froebel memorial influenced by the altar of Agate Tyche that Johann Wolfgang von Goethe had erected in his garden on the river Ilm in 1777?



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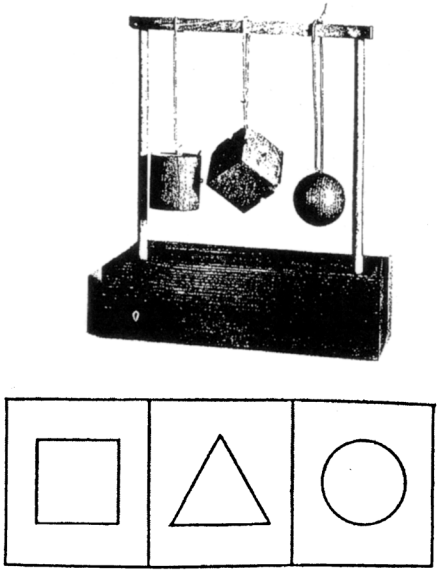
the only fundamental category a child comes across. For instance, it might have been equally conceivable to concentrate on elementary chords or vowels. Yet Froebel decided, apparently instinctively, to favor not the elements of time but those of space. This is why it is no accident that for future architects such as Wright and LC, attendance in Froebel's gardens of play assumed a special significance. Therefore, we can easily agree with Solitaire's adding one more example of the effect of sphere, cube, and cylinder to show the "subterranean persistence" of Froebel's influence on LC (figure 221).

Since what is at stake in the missions of all three reformers is the purity of beginnings, they seem comparable: Rousseau, the pure beginnings of humankind; Pestalozzi, the pure beginning of childhood that needs to be protected; Froebel, the first interaction with beginning geometry to ensure the autodidactic development of the quest for human purity. Viewed from this perspective, LC's childhood is seen as resting on a base of fundamental convictions determined by Jean-Jacques Rousseau, just as his own family and his immediate environment thought and above all felt in a Rousseauist manner. The years spent by the young Jeanneret in the Froebel kindergarten solidified this basis even further.



221
A further example testifying to the effect of Froebel's gifts on LC (Marc Solitaire).

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The Canton of Neuchâtel as a Pedagogic Pioneer

In my description of the lake-dwelling discovery of 1854 (chapter 18) I quoted a paragraph from a schoolbook used by the young Jeanneret. I wanted to make clear that the third generation after the discovery of 1854 was confronted very early with its own prehistoric past, that is, in the first school years. This schoolbook, *La patrie* (figure 168) compiled by C. W. Jeanneret, secretary of the Collège de La Chaux-de-Fonds, was designed with the middle level of instruction in mind and was used until the age of twelve.

Yet this middle level (*Degré moyen*) was not early enough for the *didactic lake-dwelling fever* of the Neuchâtel authorities, who owed to their lake and its extremely rich sites of prehistoric findings not only their entry in the Exposition Universelle of 1867 but also the elevation of the site of La Tène in 1872 to the rank of a designation of an archaeological period.[12] Hence it is not surprising that Christin Osterwalder-Maier emphasizes the special role of the Neuchâtelois in the question of "when prehistory was integrated in the curriculum and the schoolbooks." Long before the cantons of Valais, Geneva, or Fribourg, in the summer of 1890, the canton of Neuchâtel expressly ordered the subject of lake dwellings to be made a required subject, including for the lower grades. In the "General Plan of the Curriculum of Instruction for the Primary Grades," decreed by the canton on June 9, 1890, it is prescribed that children in the lower grades, those aged seven to nine years, be taught about "the lake-dwelling culture, Diviko, the Romans in Helvetia" (*les populations lacustres, Diviko, les Romains en Helvétie*). "Neuchâtel thus belongs among the first cantons that already in 1890 believe that the lake dwellings deserve a specific mention in the curriculum."[13]

The topic of lake-dwelling is indeed discussed already in the *Premier livre de lecture* (First Reader) and visualized in an illustration (figure 222). This picture, possibly the very first visualization of a settlement on stilts above water that LC saw, looks rather bleak but palpable and solid. The quality that is missing is the tropical charm that characterized the majority of illustrations of water settlements based on Keller's versions of Sainson's drawings from New Guinea. In other words, the schoolbook's author, C. W. Jeanneret, nei-

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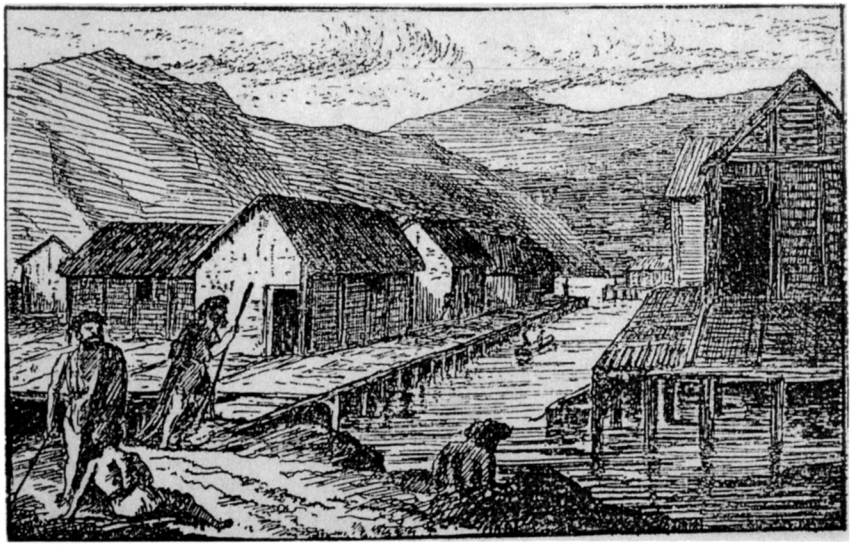
222, 223
La cité lacustre, shown as an illustration in the *Premier livre de lecture,* is quite likely the first picture of a lake-dwelling settlement that LC saw as a schoolboy (222). In the second reader, *La patrie,* the theme of lake dwelling appears for a second time and in greater detail, including a reference to the word *palafittes* and a mention honoring its author (223).



C'est au savant distingué que notre pays vient de perdre, à M. le professeur Desor[2], que nous devons en grande partie les recherches et les publications relatives à ce domaine si neuf et si intéressant de la science que nous appelons l'*archéologie préhistorique*, c'est-à-dire l'histoire avant les documents écrits.

(D'après A. JACCARD.)

NOTES ET QUESTIONS

[1] *Palafittes.* Nom donné par M. Desor aux constructions lacustres; ce mot, tiré de l'italien, *pala fitta* (*pala*, pelle, *fitta*, fiché) est une reproduction de l'allemand *Pfahlbauten*, construction sur pieux, sur pilotis.

[2] *Edouard Desor.* Savant géologue, né en 1811, mort en 1882.

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ther adopted the Keller-Sainson type nor followed Troyon's round huts derived from descriptions by Strabo in antiquity. The prototype chosen by La Chaux-de-Fonds is English and leans on the tradition of John Edward Lee, who depicts a pronouncedly northern type of house. The original on which the Swiss schoolbook illustration was based, I believe, was in the British publication *The World of Wonders* (London, Paris, New York, 1883, illustration on p. 64). It is quite plausible that this representation seemed easy to accept to LC and his schoolmates because it had neither exotic nor antique overtones, and thus appeared "normal" with respect to landscape and climate to children from the Jura highlands.

The accompanying text in the first reader is clearly simpler than that in *La patrie.* Moreover it introduces the concept of pilotis and emphasizes that a movable bridge can be pulled back "in case of danger and that it can isolate the inhabitants from the shore" (*en cas de danger, un pont mobile pouvant au besoin les isoler du rivage*).[14] The fact that these people did not dwell on the shore but above water is casually stated as a self-evident matter, in a manner astonishing to us today. The comparison with the present is brief and concise: "Our present villages have larger houses, more solid and comfortable than the huts on piles of our ancestors. Furthermore they no longer are situated above water but on the shore or in the valleys of the Jura and of the Alps."[15] (*Nos villages actuels ont des maisons plus grandes, plus solides, plus confortables que les cabanes lacustres de nos aïeux. Ils ne sont plus sur l'eau mais sur le rivage et dans les vallées du Jura ou des Alpes.*)

In this manner, as casual as it is insistent, young students who have just learned to read are informed of the remarkable fact that we are *creatures born first above water or up in the air* who learned *much later* to live on land. The last sentence of the text reads: "The old country of the lake dwellers and the Helvetians became French Switzerland" (*L'ancien pays des Lacustres et des Helvètes est devenu la Suisse romande*).[16] Two years later, in the middle grades, in *La patrie* we are introduced to more convoluted sentences and more abstract formulations, but the illustration is left out. The lifestyle in the Pacific ocean is described; then follows an exclamation: "one would never have imagined this . . . and yet it was the case" that "the greatest analogy" was discovered between our own savages on our lakes and the faraway savages on the Polynesian islands (*on ne se fût guère imaginé . . . c'était pourtant le cas . . . la plus grande analogie*).[17]

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In light of the La Tène findings, the student is oriented to the difference between the Stone Age, the Bronze Age, and the Iron Age. In addition, practical details are supplied. There is, for instance, the 8-meter-long dugout found in Bevaix and preserved in the museum of La Chaux-de-Fonds; then there is information about other promising sites such as Auvernier, Cortaillod, and Concise farther down the lake, where one had a chance of lifting valuable archaeological items out of the sand at any time. This invitation to self-service on the lake shore led to archaeological pillage that had to be stopped by the regional government, as Karl Zimmermann reports in an informative study on "Lake-Dwelling Romanticism in the Federal Congress Hall."[18] Put briefly, Zimmermann concretely shows how the pile-work collection of the physician Victor Gross of La Neuveville on the Lake of Bienne (who asked his patients to look for him for finds on the lake shore) was bought by the Swiss federal government under dramatic circumstances in 1884, and how in the process the decisive impulse to found a Swiss national or regional museum came into being. The conclusion of the text on lake dwelling in *La patrie* is illustrated here (figure 223) because it clearly manifests the attentiveness to detail and exactness at work in the Romandie region in the choice and application of these new concepts. The work of the Neuchâtelois geologist and archaeologist Edouard Desor is recognized and his term *palafittes* for pile-work dwellings, derived from the Italian, is explained.

The Metropolis of the Watch Industry Becomes a Pedagogic Model

In the third generation, lake-dwelling fever reached the pedagogic-didactic stage, and exactly at this point La Chaux-de-Fonds turned into the leading district of pedagogy in French Switzerland. What does this mean exactly? Since 1865 the prestigious magazine *L'Educateur* has been published twice every month, supported by the Société pédagogique de la Suisse romande. The chairmanship of the editorial board rotated every three years to another person in a different locality, customarily to someone in a cantonal capital. On January 1, 1890, it was the turn of La Chaux-de-Fonds; the director of the primary schools of this city, Edouard Clerc, took over the editorial functions for the next three years, until the end of 1892. In his editorial in the first issue (at the start of 1890) Clerc underscored that, in light of new bylaws and extensive renewal of the editorial board, with the choice of La Chaux-de-

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Fonds—not a cantonal capital—a strong revival of decentralization was to be expected. What Clerc glossed over was the fact that La Chaux-de-Fonds, with some 27,000 inhabitants (26,933 in the census of 1888), second in its canton only to Neuchâtel, was about to gain access to the worldwide markets of the watch industry. In the 1890s in this remote town in the mountains decisive strides were taken in the organization of precision work in watch manufacturing, supported by banks and by an ever-expanding marketing network. In his accounts of this rise of a small town to the level of high technology,[19] Jacques Gubler shows how its population rose to 35,968 inhabitants inside twelve years (1888–1900).[20] Around 1900 La Chaux-de-Fonds had become the world capital of watch production and won the Grand Prix of the Exposition Universelle in Paris. At the turn of the century the Swiss watch industry produced ninety percent of all watches, and La Chaux-de-Fonds supplied no less than sixty percent of this amount.[21]

Already in the eighteenth century, the farmers of the Jura region, snowed in during the all-too-long winter months, had tried to earn additional income with technical handicrafts. They started to produce pendulum clocks and even to invent automatons, robotlike dolls that not only moved but could write or even draw, motorized by a highly complex, almost computerlike mechanization (figure 224). What began there as an ingenious exercise of the imagination in three-dimensional terms, at a level of miniaturization far ahead of its time, developed in the nineteenth century into what Karl Marx called "heterogeneous manufacture." Jacques Gubler cites a passage from the first volume of *Das Kapital* (1867) in which Marx mentions La Chaux-de-Fonds as a city one could view as "one single enterprise for manufacturing watches." Marx compares La Chaux-de-Fonds with Geneva: Geneva is said to have produced a total of 80,000 watches, a number that is "less than a fifth of the watch production of the canton of Neuchâtel," whereas "La Chaux-de-Fonds annually puts on the market twice as many as Geneva."[22] La Chaux-de-Fonds thus appears to have led the watch market already in the middle of the century. But it is worth looking further into this chapter of *Das Kapital,* titled "Division of Labor and Manufacture," because here Marx has something to say about the professional problems of the field in which LC's father had to stand his ground, was unsuccessful, grew depressed, and finally, under pressure of the First World War, had to close his firm on December 18, 1918.[23]

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224
Jacquet-Droz, *The Draftsman,* automaton, 1769. © Musée d'art et d'histoire de Neuchâtel (Suisse). Around the beginning of the eighteenth century the farmers of the Jura started to use the long, snowbound winters for technical experimentation and quickly became leaders in the production of watches; with their automated figures they attained the high technology of that time.

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Professional Problems of LC's Father

Marx chose watch production as an example of heterogeneous manufacture because "it depends on a tremendous number of detail workers." For more than half a page he enumerated these specialists, from "the watchcase maker, pinion maker, watchface maker, mainspring maker" to "the watchface enameler, the pendant maker, the *finisseur de charnière* (who inserts the brass pin in the middle of the case, etc.) the *faiseur de decret* (who makes the springs that push the case covers open), the engraver, the chiseler, the polisher of the case, etc." Edouard Jeanneret-Perret happened to own a workshop for watchface makers and enamelers, and thus belonged to a group of manufacturers especially sensitive to the risks of the division of labor, for "the watchface, the spring, and the case are rarely produced inside an assembly plant." Since the "competition between workers who want to work at home is the strongest," the situation of these specialists was especially uncertain and risky. "The predicament of the detail worker who works at home for a capitalist (for a factory owner, for a business establishment) is completely different from that of an independent craftsman who works for his own clients."[24] Because Jeanneret-Perret was neither a self-sufficient manufacturer nor an independent craftsman but a detail supplier, in the last year of the First World War he experienced a business crisis from which he did not recover.

The *mountain town with high-tech achievements* in which the Jeanneret family had to hold its own was thus nothing like a cozy provincial community bound to tradition, as many LC admirers generally assume. On the contrary, with its obsession with progress and its readiness for economic risks and hardship (today one would say, its staking all on one single product, the watch) it was a downright "American" case in the middle of the European continent; a case that in addition to Marx ought equally to have interested Henry Ford or F. W. Taylor. It was a kind of Chicago or Detroit under banks of mountain snow, a sleepy, remote winter landscape at night, in which rose brightly lit ghostlike factories where one had to work with highest concentration and extraordinary precision—what an insidious contradiction, and an apparently highly poetic image! The painter Maurice Mathey from the neigh-

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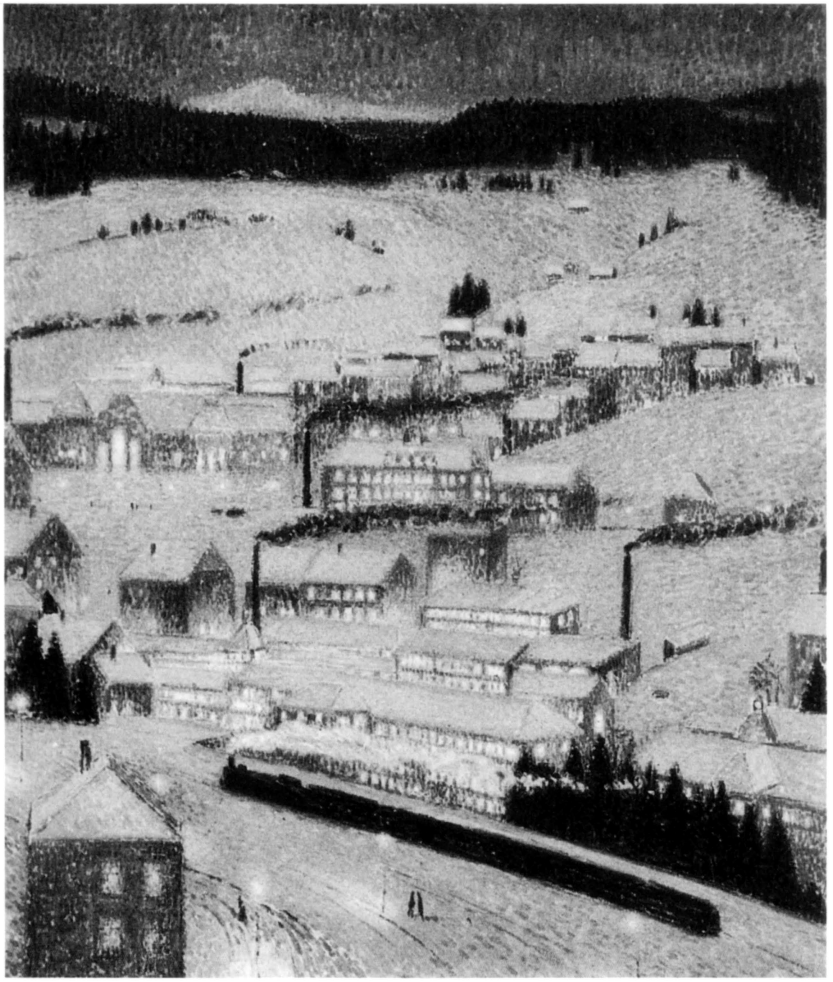
boring town of Le Locle captured the season and the time of day that articulate this contrast most strikingly in an unforgettable masterpiece (figure 225).

But let us return to *L'Educateur,* which between 1890 and 1892 was edited and published in the pedagogic suburb of La Chaux-de-Fonds. Can a town such as this, driven and lashed so relentlessly by technical and economic progress, concern itself seriously with pedagogy? Certainly, all the more so! has to be the reply. For there are two kinds of anxiety that demand educational innovation in such surroundings. The first is related to the concern to



225
Maurice Mathey, *Industries,* 1914, oil on canvas. © Musée des Beaux-Arts, Le Locle. Photo Pierre Bohrer. A Chicago or Detroit up in the snowy mountains.

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develop a sufficient number of talented minds and hands able to master the fashion-dictated fluctuations of the worldwide watch market. The second is tied to the reluctance to surrender one's children to the furious pace of progress, to the need to instill in them a counterforce, a slowing down that anchors them in the hold of the elementary. An example of such a countermeasure was the founding of and lively support for the Froebel kindergarten. Another example was the active pursuit of the newly established regional archaeology on the neighboring lakes and the immediate acquisition of the best and most expensive examples for the local museum—for instance, the large dugout from Bevaix, or the *Femme lacustre* painted by Albert Anker (figure 208) which has proved to be the definitive masterwork on the lake-dwelling theme, next to the two pieces by Bachelin (figures 202, 204). We must keep in mind that in the 1890s and during the later economic upswing La Chaux-de-Fonds was wealthier than the canton's capital.

Thus lake-dwelling archaeology exerted a special pull on the *horlogers de la montagne,* the watchmakers in the mountains. The person who consecrates himself to technical progress simultaneously feels magically attracted by the counterforce, by the testimonies of primal origins, especially when these are not merely verbal testimonies but objects one can observe clearly and which have an exactly verifiable provenance. For people "who think with their hands," and watchmakers certainly are among them,[25] the found object, the archaeological find, *is of a higher order of evidence* than the mere word.

The Curriculum of 1890

Viewed thus, it is fully understandable that the new editorial team from La Chaux-de-Fonds assigned a high priority to the topic "Archaeology in the Curriculum." Already in the issue of February 15, 1890, we find under the title "Histoire" a list of key words[26] that sounds like an early version of the cantonal decree on this topic that, as noted above, was put in force on June 9 of that year.

Teachers and their spokesmen seemed to be pressing in favor of the decree. They were again in the grip of lake-dwelling fever, this time on the pedagogic-didactic plane. How can one explain this course of events? As it happens, the author of the essay "Histoire" gives an explanation for this new form of the *furor pedagogicus.* Paul Jacquet, a teacher from La Chaux-de-

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Fonds and secretary of the new board of directors leading the teachers of French Switzerland, added to his curricular program for prehistory a recommendation that he titles "Preparatory Reading for Teachers." The most important sentences read as follows: "In the course of observing the development of the intelligence and the emotions of children one can arrive at an understanding of the intelligence and the emotions of prehistoric man. With its impulsive nature, its egoism, its complete lack of morals, and its naive wildness, the child resembles the simplest primitive man."[27] This parallel between the individual development of the child and the whole development of humanity is one of the most fascinating topics of the second half of the nineteenth century. Ernst Heinrich Haeckel, a German supporter of Darwin's doctrine of human origins, formulated this parallel as follows: "Ontogeny [individual development] is the short and rapid recapitulation of phylogeny [the development of humankind]."[28] As long as this parallel or recapitulation remains limited to the anatomical sphere, it is less controversial than when it is also applied to instincts and feelings, that is, to the psychological sphere. This did not seem to trouble our author Jacquet: the teaching profession was bound to feel upgraded by this unlimited form of Darwinism that transfers the idea of recapitulation to psychological phenomena. For seen thus, the teacher becomes the witness of the "short and rapid recapitulation" of innumerable thousands of years, which unroll uninterrupted in the schoolroom like a tremendously expanded yet at the same time fabulously compressed film. In short, the knowledge of early history, if possible that of one's own region, and at that time especially the knowledge of lake-dwelling cultures, advanced teachers to the rank of greatest priority. Jacquet quoted the relevant passage not from Haeckel's formulation but from Gustave Le Bon (1841–1931), a French physician and later sociologist who is considered the founder of mass psychology and became known as the author of popular science treatises on the evolution of various civilizations. The passages referring to recapitulation Jacquet drew from Le Bon's *Les premières civilisations,* which appeared in 1888 and was still a new publication when Jacquet was writing. By the way, Le Bon was in fact a favorite author of LC, who owned no fewer than four of his works. In addition to *Les premières civilisations,* LC's library contained *La civilisation des arabes* (Paris, 1884), *Les civilisations de l'Inde* (Paris, 1887), dated by LC as acquired in 1909, and *L'évolution de la matière* (Paris, 1919).[29]

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In conclusion, once again we ask, what fascinated the teaching profession to the point of giving the lake-dwelling findings that strong didactic turn? With her study on the period's curriculum plans and the conspicuous interweaving of prehistory and the teaching profession, Christin Osterwalder-Maier has touched upon a wide range of opinions from the mildly ironic to the sarcastically critical. At the height of the lake-dwelling fever in the 1890s the teaching profession appears to have enjoyed a degree of prestige hardly conceivable in former times, yet it was dismissed by the professional scientific disciplines as terribly oversimplifying. We have noted one possible explanation of this paradox via the concept of recapitulation—the retracing of all biological levels of development by each living being—as the motive for presenting prehistory not to the older but to the youngest students. Osterwalder-Maier rejects this "childlike simplification" and is astonished that "neither the didacticists nor the scholars of prehistory faced the consequences of that state of affairs."[30] However, every paradox has its reasons. To me, the grounds of the fascination with the lake-dwelling phenomenon seem more likely to be formed by the ideas of Rousseau, supplemented later by superimposition of arguments from Darwinism. The image of the lake-dwellers' life—peaceful, nonaggressive, hygienic, located on a podium above water—celebrates the originally good human being in the very sense of Jean-Jacques. This image of childlike, pure, innocent existence on an island motivated teachers of that period as much as it did ethnologists. And Ferdinand Keller's transposition of the Pacific life above water to the shores of the Swiss lakes was a master coup, which once again invoked and glorified the power of Rousseau's vision of human origins only five years before Darwin (*On the Origin of Species,* 1859) proposed a totally different picture of human origins.

The Father's Passion for Mountaineering and the Primeval Alpine Architecture of Valais

The very thing that his teachers had described, that little Jeanneret had read and seen illustrated in his schoolbook, that he had come upon on visits to the local museum, all proved to be real during summer vacations in the mountains. There in Valais he encountered pile-work face to face and life-size (figure 226). To be sure, this was not pile-work above water but on the slopes, the elevation on piles supposed to keep haylofts inaccessible to foraging rodents.

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226
Archaic but still-used hay-lofts in Naters in the canton of Valais. The idea for the Ville-Pilotis from the mountains?

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In March 1892 LC's father handed to his two sons the slim volume *Mes vacances 1887–1892* (My Vacations from 1887 to 1892).[31] The content was not made up of family reminiscences but of five excursion reports the father had written as president of the La Chaux-de-Fonds section of the Swiss Alpine Club (SAC). A passionate mountain climber, with a special preference for the highest region of the high Alps of Valais, he not only led these annual group tours every summer together with the local guides, but also every year wrote a report, as enthusiastic as it was precise, that was published in the club's magazine. Among the illustrations the boys found photographs of two haylofts in Naters near Brig. Elevated on a socle of stonework, the small wooden shed, with its conical pole shafts and flat circular stone slabs jutting far out with their wide circumference, stood completely above the ground and allowed one to look fully across under it. Evidently, Jeanneret-Perret was fascinated by this singular construction, so much so that he wanted to record it in the reports of SAC tours.

Since the whole family often spent their vacations in Valais, both boys came to know from experience not only the haylofts on a stone socle but also the older, original type of loft on a wooden socle (figures 227–229). Since their eye level was lower because of their shorter height, both boys could see, observe, and marvel at that sixth side of the cube that we discussed in the first and second parts of the book. At the same time they encountered in these small treasure houses, which contained fodder necessary for the farm animals, a rough and raw manner of construction: rough-hewn wooden posts, indented in a simple way but daringly suspended, bleached by the sun, apparently centuries old. Indeed, the still preserved buildings of this type, which are usable even now, possess a noblesse that need fear no comparison. Since they are the treasuries of the farmers, I am tempted to compare them with an exclusive type of treasury from antiquity. Dare one compare the marble Athenian treasury at Delphi with a wooden hayloft from a high mountain valley (figures 230, 231)? Here we encounter they very problem that LC transcribed as "the fisherman's hut and the palace" during the years of the League of Nations project. And the comparison holds. Two primeval though contrasting types of house, of treasure house to be precise, are put side by side and remain equivalent. So much so that the question regarding the materials (marble as against mountain wood) recedes into the background before the equal worth and stateliness of both structures.

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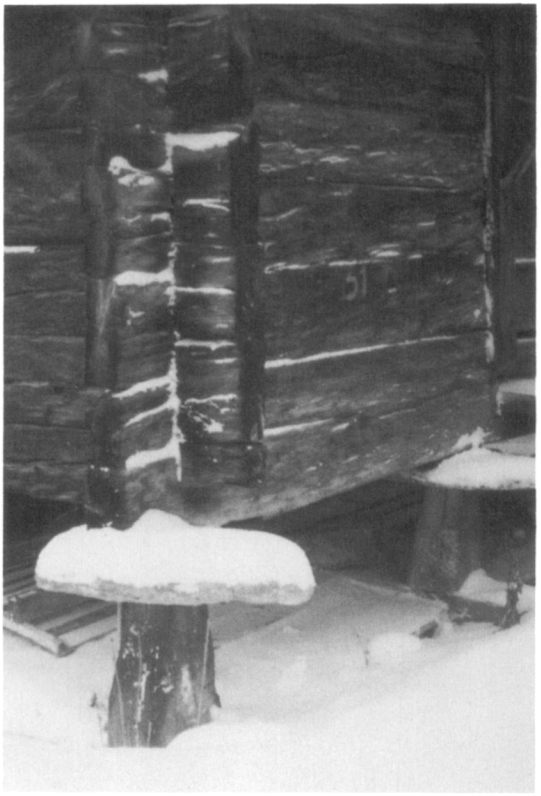
227–229
"The sixth side of the cube" in Valais. The conical support bears the stone dish that keeps rodents from climbing up. (Examples from Münster, Goms, Valais.)



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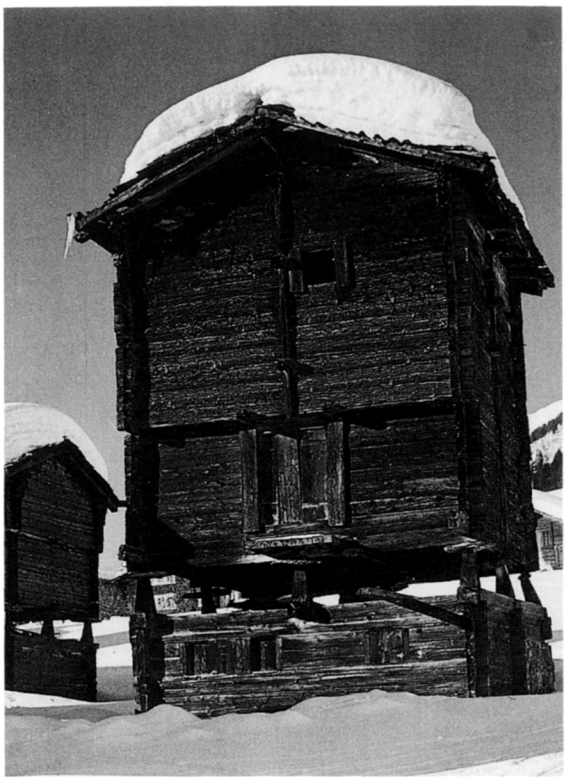
230, 231
An audacious comparison: the treasury of the Athenians at Delphi, made of marble, and the treasury of the Valais farmers, made of wood.



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For Edouard Jeanneret-Perret it was important that his family shared his fascination for the high mountain culture of Valais. As soon as the boys were old enough, the whole family attempted more ambitious climbing tours at the height of glaciers. For instance, in August 1902, they started from the resort of Champex, situated at the height of a pass far above the Val d'Entremont leading from Martigny and Orsières to the Great Saint Bernard Pass.[32] Photographs in the mountain album of LC's father (LC archive, La Chaux-de-Fonds) show the family in the process of ascending in the summer heat to Aiguille du Tour across snow-covered slopes (figure 232). The middle photo shows the mountain guide Biselx, followed by LC's mother made totally anonymous by her hiking costume, and in front at the right the fifteen-year-old Edouard. The photo on the right shows how the adolescent boys attempted to distance themselves, by witty transformation of their suncovers into Chinese masks, from being treated as infants (*le petit Edouard* is almost taller than his mother); this goes on for a very long time, as proved especially by letters from their domineering mother. Father Jeanneret annotates his photos as painstakingly as ever and does not leave out the peaks' names in the upper corner.

But let us return to the solemn handwritten dedication to *Mes vacances 1887–1892* that the father wrote on March 26, 1892, for his children, at the time only five and seven years old. How did he happen to have these special offprints bound, with a rather awkward title page illustration added? On this matter, information is found in a commemorative issue "1887–1937" published as bulletin no. 43 by the SAC (also in the LC archive at La Chaux-de-Fonds). Since this volume celebrates the fiftieth anniversary of the La Chaux-de-Fonds section, it is no surprise that Edouard Jeanneret-Perret, who had died in 1926, received an obituary in appreciation of his presidency of the club from 1887 to 1892. The last year of his presidency is the year of the dedication addressed to his little sons: obviously, Jeanneret-Perret's (premature) retirement from the leadership of his SAC section was so aggravating that he felt he had to give a sign thereof to his children. In the obituary, Edouard Wasserfallen portrays his late friend so painstakingly and revealingly that he answers our questions. He describes a mountain tour the two friends made together in Valais and states:

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232
Summer vacations of the family Jeanneret, August 1902, in Champex. Ascent to Aiguille du Tour with the mountain guide Biselx.

It was then that I first got to know Edouard Jeanneret. Until then his gray face of a watchface manufacturer, baked and refired before his [enamel] oven, and all his usual statements had seemed morose, though often accompanied by witty remarks in his capacity as president. And even his jokes during the cozy meetings on Friday evenings were somewhat caustic. Here up in the mountain, before the glorious rays of the high peaks he revealed himself as warm-hearted, enthusiastic, poetic, yet with an even voice, without explosions. . . .

I began to understand what was unsettling him. His profession was in jeopardy. The beautiful watchfaces of enamel with hand-painted numbers, with the tiny additional dial for the seconds (I believe this is the professional term), were disappearing as a result of the [new] procedures of photography and ceramic decals. Nothing personal anymore, and nothing artistic anyhow. The factory directors left the atelier Jeanneret in the lurch and looked elsewhere for something cheaper to buy. Even his friends from the Alpine club, several of whom owned at the time a *comptoir* or a factory, passed him over. Business success was dearer to them than friendship. But he hesitated to submit to the new conditions, to degrade himself. This is one of the reasons why in the previous year, in 1892, he had stepped down from the presidency of the SAC section.[33]

(*C'est là que je commençai à connaître Edouard Jeanneret. Jusqu'alors son visage gris de fabricant de cadrans, cuit et recuit devant son four, ses propos habituels me l'avaient fait paraître morose, ses répliques souvent spirituelles, comme président, même les plaisanteries durant les bonnes soirées du vendredi avaient quelque chose d'un peu amer. Ici, devant ce glorieux rayonnement de sommets, il se révélait chaleureux, enthousiaste, poète, mais à voix contenue, sans éclats. . . .*

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Je compris alors ce qui le tourmentait. Son métier était menacé. Les beaux cadrans d'émail aux heures peintes à la main, avec le minuscule cadran des secondes rapporté (je crois que c'est le terme exact) allait disparaître devant les procédés de la photographie ou de la décalcomanie. Plus rien de personnel, d'artistique en somme. Les fabricants lâchaient l'atelier Jeanneret, ils allaient au bon marché. Même les amis du Club, dont plusiers en ces temps-là avaient un "comptoir" ou une fabrique, le délaissaient. Les affaires avant l'amitié. Et lui hésitait à se plier aux exigences nouvelles, à s'abaisser. C'est une des raisons pourqoui il avait, l'année précédente, en 1892, abandonné la présidence de la Section.)

Thus LC's father not only was victimized by the unstable conditions of the supplier of parts going between the manufacturer and the craftsmen, as described by Marx; he finally also fell victim to forms of progress that reproduced mechanically what he and his collaborators had produced as craftsmen. He found the mechanical process in his professional field degrading. His son was to make this question—craftsmanship or machine?—the basic question of his career. He followed progress in construction (steel) and in materials (concrete and glass) doggedly, to the point of pigheadedness, and yet proved able to wrest from the newest materials (at least until 1928–1929) a poetry that was unique and has endured until today, in spite of technical flaws.

The professional debacle of LC's father became public in 1892 with his resignation from the SAC but led to his bankruptcy twenty-six years later, in December 1918. Was this agony, which lasted a quarter of a century, LC's motivation to escape, the driving force that led the son to the extreme opposite? Did he over and over again have to prove to his father, who lived one year on the Lake of Geneva (1925–1926) in the *petite maison* built by his son in Corseaux-Vevey, that not only craftsmanship but also the products produced by machines in series can convey poetry, even pure poetry?

One thing is certain: like LC's mother, his father possessed a genuine poetic sense, but it was, literally speaking, situated on a much higher plane, in the high mountains of Valais. His friend Wasserfallen was justified in saying that he proved to be *chaleureux, enthousiaste, poète* first and foremost in the higher regions, on the mountain peaks. This poetic gift manifested itself not only in the extraordinary quality of his reports on alpine excursions but, surprisingly, also in his undertakings as the club's architect; that is, he designed the mountain huts that served as shelters under extreme weather condi-

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tions in the highest alpine regions. In the few years of his SAC presidency he planned and built the Oberaletsch mountain hut (2,670 meters above sea level), inaugurating it in 1890 (figure 233). The initiative for this project came solely from Jeanneret-Perret and filled the La Chaux-de-Fonds section with such enthusiasm that eleven years later, in 1901, long after he had resigned from the club's presidency, he was able to inaugurate another hut that he had built, the Cabane du Valsorey (at 3,030 meters), situated high above Martigny, Orsières, and Bourg-Saint-Pierre on the shoulder of the peak of Grand Combin (figure 234). Both are wooden huts of the type specified by the Alpine Club at the time. Prefabricated and test-assembled by carpenters in the valley (figure 235), they were then hauled up in small units to the mountain site by pack animals and assembled permanently. J^{t}-P^{t}, as LC's father liked to sign his name, thus practiced architectural production techniques that anticipated much of what his son would later demand and apply in buildings for regions of temperate climate. The father anticipated also some of his son's favorite verbal formulas. For instance, he spoke of the inauguration of the Oberaletsch hut as a "great lived poem there on the Aletsch glaciers" (*grand poème vécu là-haut sur les Glaciers d'Aletsch*).[34] Or, just like his son on many later occasions, he chose a preacher's tone for his speech at the inauguration of the Valsorey hut to indicate the real values at stake. This shelter was constructed for those "who seek nature in a state as the Creator fashioned it; for those who seek life in the rough . . . , who seek healthy and pure emotions without looking for any other rewards than an inner satisfaction" (*la nature telle que la fit le Créateur, . . . les émotions saines et pures, sans récompense autre qu'une intime satisfaction*).[35]

What fascinated and occupied Edouard Jeanneret-Perret was survival in extreme climatic regions, whether in niches provided by nature or in shelters provided by architecture. Three examples from his mountain album prove how precisely he registered such borderline cases. The three *clichés,* as he called the photographs, prove that he had great sensitivity for different materials and that he certainly must have asked himself whether the wooden huts customarily specified by the SAC were actually appropriate high above timberline. The huts at both Oberaletsch and Valsorey appear to be lightweight containers and stand in sharp contrast to their surroundings. Presumably the SAC decided in favor of this almost tentlike flexibility to

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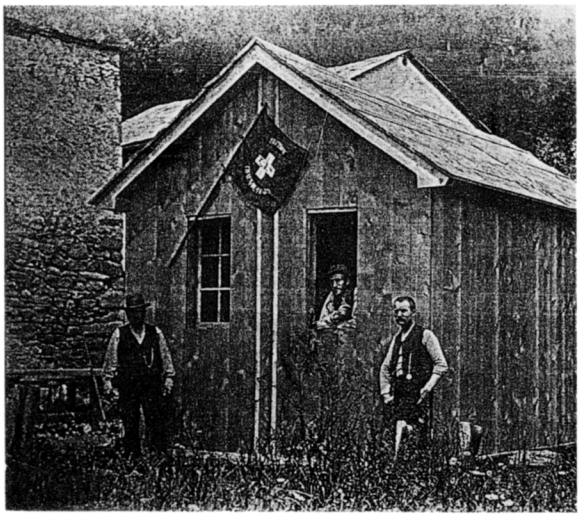
233–235
Buildings in extreme locations: Jeanneret père as the builder of shelter huts for the Swiss Alpine Club. The Oberaletsch mountain hut (233), prefabricated and assembled first in Naters (235), and the Cabane du Valsorey (234).



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economize costs. Jeanneret for his part showed counterexamples in his album: a mountain refuge on the Matterhorn, put together out of heavy rock boulders fractured by nature, hewn by men, and covered with slatelike, thin stone slabs (figure 236); and the highest constructions made by human hands in the Baltschiedertal (as he specifically pointed out), situated at 2,191 meters above sea level, the Hobitzo chapel (figure 237). What we have here is an artifact made of the same kind of stone that characterizes its surroundings, with a shed roof leaning against the rock. J^{t}-P^{t} was eager to catch this in a *cliché,* together with the three Kalbermatten brothers who acted as guides or porters, and he got into the picture himself at a distance, in the lower right corner. His third celebration of the stone element seems at first glance centered on a group of people but proves eloquent on closer perusal (figure 238). It shows five members of the Kalbermatten clan, at the extreme right his friend Julien Gallet, and up front in a sitting position Jeanneret himself. The marginal note says: "Under this enormous rock we stayed twice overnight." Evidently, this encampment in the dark cave under the fallen boulder in the remote Baltschiedertal had a special significance for the man. It was a case of survival in a borderline region, not with the help of architecture but in a found niche made by nature. LC's father seems to attain in this way his primal experience. This appears to be his Ireland, his crannog, or even his Arcachon. To put it differently, what Jean-Jacques encountered in the forest happened to LC's father high above timberline under that "enormous rock."

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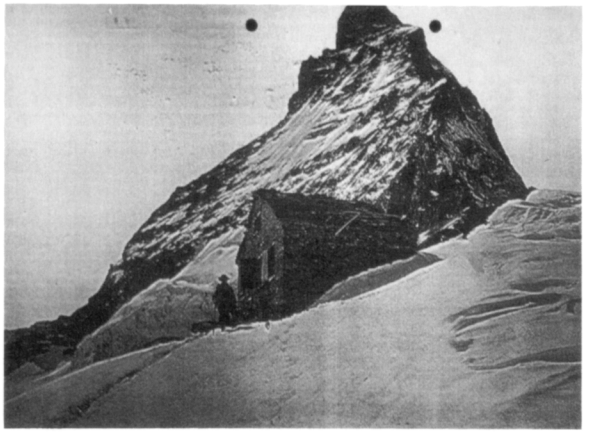
236–238
Survival under extreme climatic conditions, a favorite problem for LC's father. In his mountain album he shows a variety of stone hut on the Matterhorn that he would have preferred but that was not defensible on economic grounds (236). A chapel in Baltschiedertal, this valley's "highest construction made by human hands," as he notes (237). "Under this enormous rock we stayed twice overnight" (238).



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Viollet-le-Duc as a Witness of the New Sensibility for Analogy

An afterthought: the pile dwellings on the Swiss lakes and the strange haysheds in Valais, elevated above their supporting structures, hardly seemed related; and since lake dwellings were studied under the topics of prehistory and the Valais granaries under folklore and farmhouse topology (ethnology and anthropology), there was little chance that they could be viewed under a common perspective. Nevertheless, the fact that both show the same feature of being elevated on piles attracted immediate attention, and since it carried a parallel message, it changed hitherto accepted views of history in the different disciplines. In other words, the shared feature reciprocally amplified the changes in the two fields' views of history. For when any new discovery occurs like that of lake dwellings in 1854, the sensibility for analogies is always intensified. If something is discovered that suddenly seemingly connects New Guinea in the Pacific with Meilen on the Lake of Zurich and with La Tène on the Lake of Neuchâtel, why shouldn't it also be related to the primitive granaries in the remote secondary valleys of Valais (and related granary types of the Dogon in Africa, for instance)? An early witness to this intensified sensibility for analogies was Eugène-Emmanuel Viollet-le-Duc (1814–1879), the prominent French scholar of monuments, architectural preservationist, and historian. In 1872 the canton of Valais commissioned him to head the restoration of the cathedral of Lausanne. The fifty-eight-year-old Viollet transferred his residence from Paris to Lausanne, started the restoration work in 1873, built himself La Vedette as his new place of residence, and in his advancing age developed a passion that rounded off his life work surprisingly and fittingly. Starting from Lausanne he began to investigate the geology of the Mont Blanc region, and this undertaking was documented by astonishingly exact and historically highly qualified sketches, drawings, paintings, and topographical maps.[36] In addition, he had brought a manuscript from Paris that was designed for young readers and that was supposed to continue the popularly conceived series of writings that started with *L'histoire d'une maison.* This time the task was to present a partly cursory overview of the historical development of types of dwellings, "from prehistoric times until down to

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the present," no less! The title of the volume, published in 1875, was *Histoire de l'habitation humaine* (History of Human Habitation).

Yet the project was not completed. When Viollet settled in Valais, in the Suisse-Romande, he kept hearing references to the lake dwellings discovered on the neighboring lakes and to haylofts on piles in the mountains of the canton of Valais. Since he was well advanced with his text, he decided to write a final chapter that would include the topic of change and expansion in the accepted version of history, presented in the form of a discussion between two scholars. In the first addition he overstepped his original goal; in the second, he provided some orientation concerning the discoveries that since 1854 had been in the foreground in Switzerland (and in Ireland, one must add).

His first addition is focused on Valais, and the illustration he uses immediately shows that he has not significantly studied the pilotis phenomenon in Valais (figure 239). His erroneous conclusion, that houses there were likewise elevated on conical supports with spherical slabs at their base, shows how strictly the Valais tradition adhered to differences in construction dictated by function. Since it is uninhabited, a granary needs intrinsic dependable protection from rodents. A house does not need such protection and the special construction features that guarantee it, because being constantly inhabited it can keep rodents out directly. Ironically, today Viollet's mistake strikes us as a witty, involuntary anticipation of LC's generation and its preoccupation. Headed by LC himself, this generation wanted to lift *all* kinds of building types on stilts—the theme of this book, needing no further explanation.

The second addition in Viollet's book deals with "the new discoveries that provoke so much discussion, namely, the lake-dwelling settlements." He includes "a sketch [figure 240] that shows some of those remote settlements in Burma, made almost completely of the bamboo that is profusely available in that country. . . . The lake-dwelling settlements on the Lake of Bienne must have been very similar, except for the building material of bamboo being replaced by tree trunks and interwoven branches covered with mud."[37] Thus, twenty years later, he repeats Keller's original connection of Swiss lake dwellings with those of New Guinea; although he displaces it in a northwestern direction to Burma, he confirms once more the fascination of the

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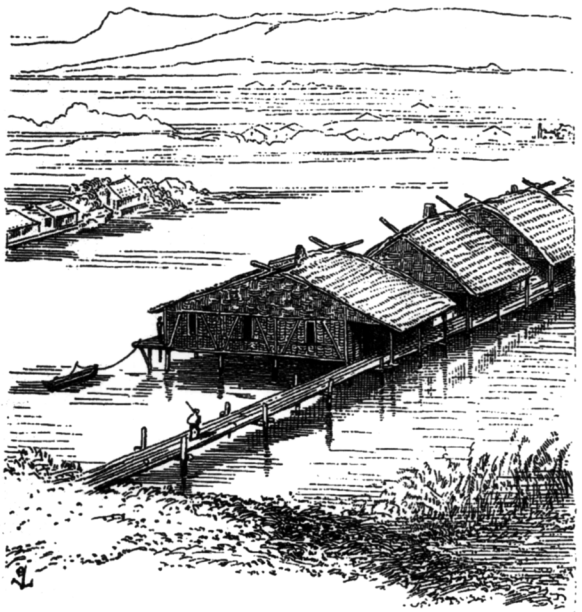
239, 240
Viollet-le-Duc is called to Lausanne, becomes interested in Swiss lake dwellings, and makes errors as far as Valais buildings are concerned (239). He also illustrates the new topic with the example of a settlement over water from Burma (240).



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analogy involving a remote, exotic site. In this case, as frequently with Viollet, the drawings are more original than the text: he shows a settlement on piles in the form of an arcade, solidly constructed and deployed along the axis of a bridge in such a uniform series that we are immediately reminded of modern vacation developments.

Mirror Images

Modernism is reflected in prehistoric origins like Narcissus in a pond. In conclusion, I add three pairs of such mirror images. Jakob Messikommer (1828–1917), an agriculturalist and writer in Wetzikon, in the canton of Zurich, became famous through his studies of lake dwellings at the Lake of Pfäffikon. For the Exposition Universelle of 1867 in Paris, which devoted the inner circle of its exhibition area to the history of labor and to early history, Messikommer received a commission to produce a model of a lake-dwelling hut. In fact, the Swiss section of the catalogue of the *Histoire du Travail,* after mentioning the paintings of Auguste Bachelin, lists "Modèle d'une cabane sur pilotis, par M. Jacob Messikommer." The drawing included in the catalogue (figure 241) explains the different materials required for the model, and the caption suggests that the "Moscow Association for Antiquities" had already received one such model.[38] Like Götzinger's model in Basel, Messikommer mentions that his had received "the approval of F. Keller," which I should like to call the Villa Savoye of the lake-dwelling culture (though it is unlikely that LC saw the drawing of it), in the hope that LC would not have objected to this comparison.

What distinguishes Karl Jauslin's representation of the *Urzeit von Helvetien* (Primeval Era of Helvetia) (1875; figure 243) from the usual pictures is the proximity of his angle of vision to the water surface. He chooses a height for his vanishing point close to that of a child, and thus sees the platforms from below and achieves that view through the "airy grove of pilotis" that LC praised so much. As soon as an architect like LC erects his pilotis on land instead of above water (figure 244), this childlike, low-situated perspective becomes unavoidable for everyone who approaches the elevated house.

At excavation sites in the moorland settlement of Weier near Thayngen, discussed in chapter 21, Walter-Ulrich Guyan succeeded in secur-

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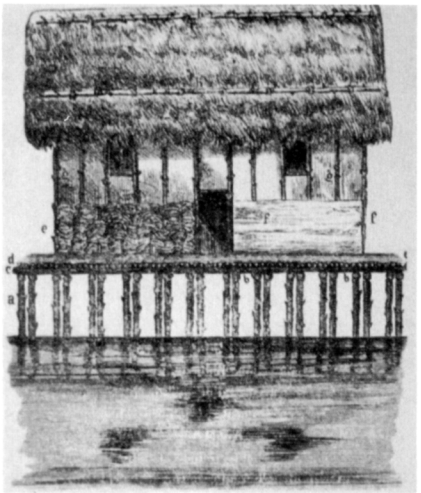

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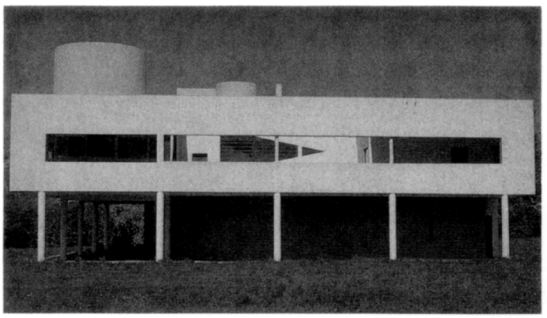

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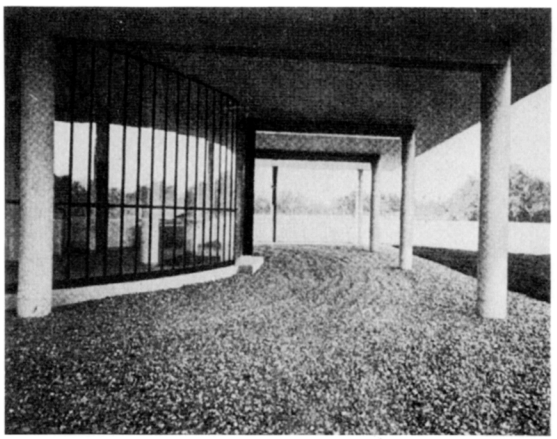

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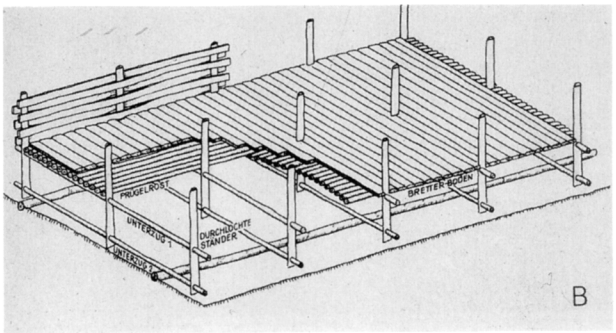
241–246
Modernism is mirrored in the earliest historical origins as Narcissus in the pond. Three pairs of contrasts: drawing after a model of a lake-dwelling hut by Jakob Messikommer, commissioned for the 1867 Exposition Universelle (241), and the front of Villa Savoye (242); Karl Jauslin's *Urzeit von Helvetien* (243), and the understructure of Villa Savoye (244); archaeological drawing by Walter-Ulrich Guyan of a house with its floor raised above ground (245), and the Dom-ino system (246).



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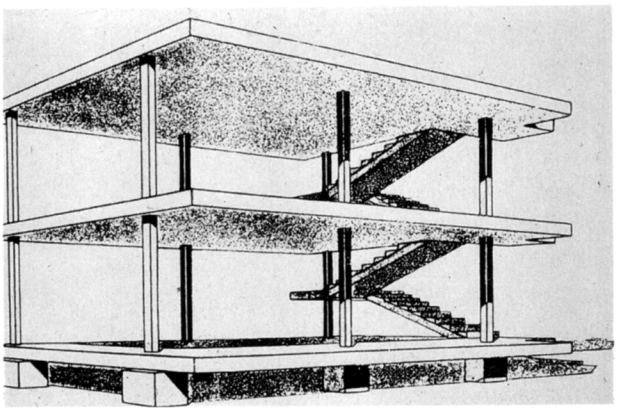

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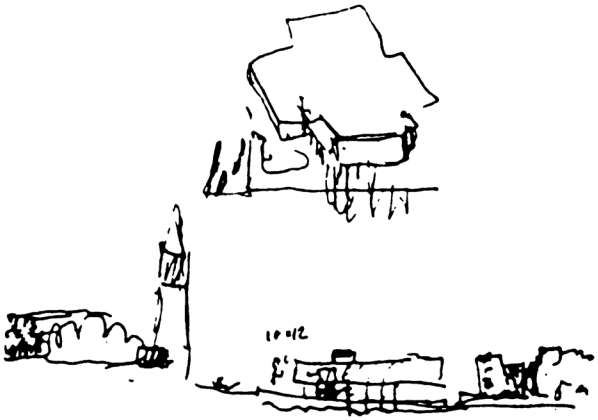
247–253
The deepest satisfaction for LC as an old man: Venice commissions him to build in the lagoon, a hospital in the Cannaregio district. LC's sketches show how he plans the pile-work in the water (247). The "stones of Venice" already rest on top of a *Venice on wooden pilotis* (248). Site of the project (shaded at upper left), near the railroad bridge (249). A sketch of the front of the hospital as seen from the lagoon: elongated buildings that stand for their full length on piles, with a bridge over the mouth of the Rio Cannaregio (250, 251). A first model adheres to this conception (252). At LC's death his boyhood dream of the lake-dweller's village (253) seems close to being realized.



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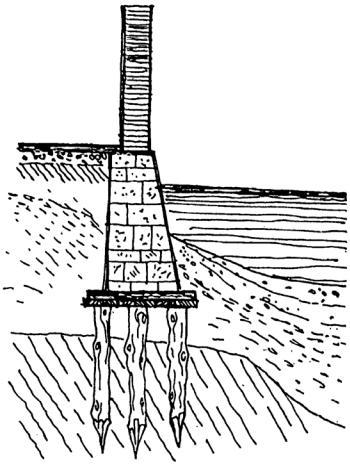

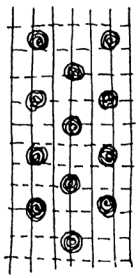

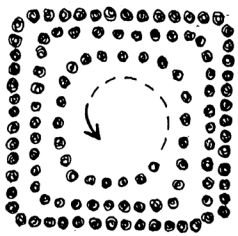

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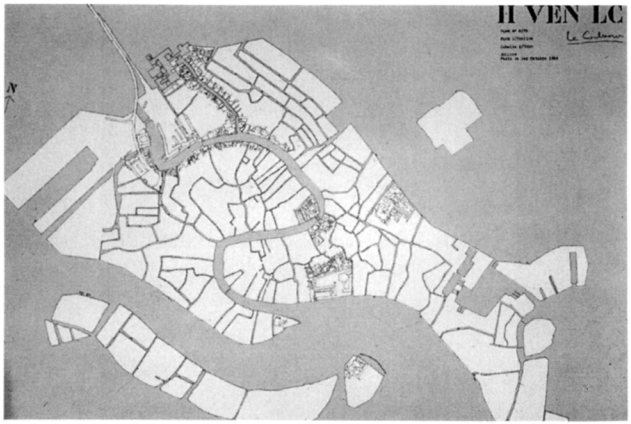

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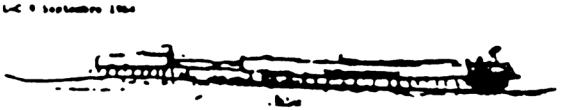

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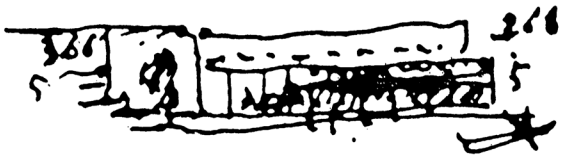

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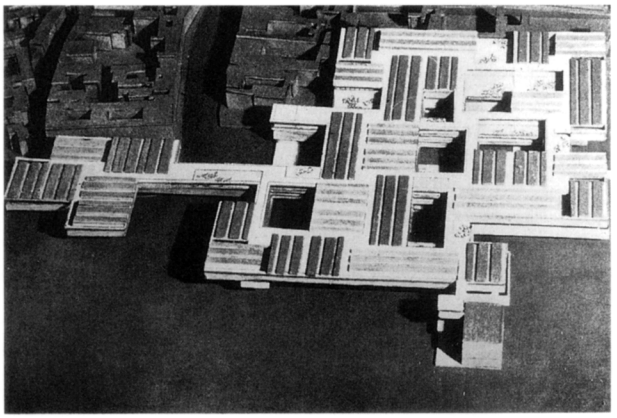

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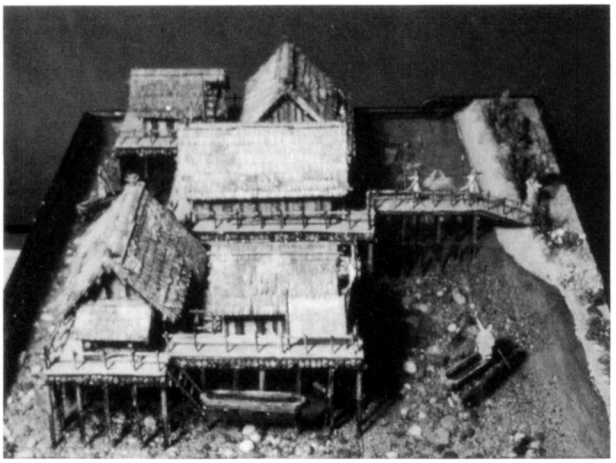

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ing the first "evidence of a type of house with its floor raised above ground, as our sketch shows [figure 245]. It is a post construction of half-timbers, that is, of logs split in half, often of elmwood, bored through twice, with two sets of poles, cross-beams, or girders drawn through the holes at a vertical distance of 80–85 cm."[39] Guyan carried out these excavations between 1950 and 1972. That LC heard of such undertakings or took part in them is highly improbable. Furthermore, the Dom-ino system (figure 246), which also uses a post construction and also is raised above ground, was developed decades earlier, in 1915.

All three pairs of structures compared here are by no means to be understood as examples of direct influence or imitation, such as art historians are wont to produce. They are comparable because they show the way in which LC's childhood became productive and led him again and again to anticipate with his designs findings later made by archaeologists.

Was this pattern lost in later decades, after the great disappointment of the League of Nations competition that deeply affected him in the end? On the contrary: even when they varied strongly in form, pilotis remained a central leitmotif and ran through his whole life's work.

One of his last commissions, which LC accepted with deep satisfaction and on which he was working when he died, was a commission from the city of Venice for a hospital building near the railway station, in the Cannaregio district. The first spontaneous sketches show that he was far from intending yet another contribution to the "stones of Venice" as John Ruskin had monumentalized them. He sketches buildings lifted on piles in the water, with the dome of St. Mark and the adjacent campanile drawn on the left and the hospital of SS. Giovanni e Paolo on the Rio dei Mendicanti drawn on the right (figure 247), creating thus an imaginary profile of how the new would look in comparison with the most prominent old.

Yet if one recalls the history of Venice's construction, it soon becomes clear that LC's *new* Venice, planned as a city on piles, would at the same time have turned out to be a *very old* Venice. For, as the section shows us, the stones in the lagoon already rest on a wooden platform on top of wooden piles (figure 248).[40] LC's avant-garde impulse to lift buildings on stilts is at the same time a move back to the first Venice, which must have been a pile construction. This double movement, through which his anticipatory move is

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also a retrograde move, irritated us at first but soon proved to be LC's characteristic working method, whose reason or roots we have endeavored to elucidate.

The commission consisted of a new hospital on the northern edge of Venice on Rio Cannaregio, which turns off from the Grand Canal at Palazzo Labia between the railroad bridge and station to the west and the Fondamente Nuove to the east (figure 249). A sketch of the front as seen from the lagoon shows that over the mouth of Rio Cannaregio LC wants to run a high unsupported bridge, anchored on the right and left in low elongated building masses that stand for their full length on piles (figures 250, 251). He does not want to exceed 14 meters in height, the prevalent norm for buildings in Venice, but this proves problematic because the building volume is further reduced by its being elevated above ground. A first model shows that the frontal sketch with the bridge was adhered to (figure 252); it also becomes increasingly clear that in this old-age project LC is turning full sail toward the dream of his youth: finally he can place a whole lake dwelling village in the lagoon (figure 253)!

His death in 1965 saved him from confrontations with the hospital's physicians, especially with Dr. Enrico Polichetti. One year later Dr. Polichetti gave a lecture that competently described hospital conditions in Venice and stated two sharp objections to LC's project.[41] First, it would have kept the patients too isolated, a thing not customary in Italy and approved only by individualists. Second, a complete village on piles would have brought a further increase of pollution. Thus LC's plan was scrapped, and thus architecture's dream of lifting buildings off the ground was also terminated.

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PART VI Why LC "Knows" What Modernism Is

How LC views the foundation, the socle of his buildings engaged our interest at the start. To follow this view further meant to assume the frog's perspective, from which what rises immediately from the ground appears as the house's beginning and the roof correspondingly as its end. Thus we are faced with a strange mixture of the categories of space and time, a mixture that turns out to be unavoidable because life as such, the building process itself, and our own sequential thinking and imagining constantly create this mixture anew.

As soon as we admit this quite irrational interface of temporal and spatial perspectives even into the seemingly fully stationary domain of architecture, we perceive in LC's case the phenomenon innocuously termed "recapitulation" by the fin de siècle.

Every person, every child enters into this extremely asymmetrical *parallel action* to the evolution of all living beings. At an extremely quick pace, like that of a fast-forward film, the individual body runs through the full course of millions of years of evolutionary history. This, in short, is the main tenet of the version of Darwinism that had its full impact in French- and German-speaking regions during LC's early school years. (However, it left unanswered the question of how far the physiological recapitulation entails a corresponding psychological one, an omission that opened the way for debased versions of Darwinism, just as first Rousseau, then Marx, and later Freud were not spared vulgarizations of their tenets.)

Our continued observation of understructures in LC's designs and buildings led back to his childhood, to his years in kindergarten and elementary school, and there opened into view a full panorama of active fascination with early history and with prehistory that would have been unthinkable in

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the educational field even two generations earlier. We were confronted with something like a *double prehistory* in the case of young Charles-Edouard.

On the one hand, in the course of his individual passage from *his own prehistory* (as a playing child) to *his own early history* (as a learning child, through reading, writing, and arithmetic), he incurred decisive imprints, which I regard as essential determinants for his life's work and which I elaborate as the thesis of my book. On the other hand, on closer examination, the content of these imprints turns out to be, strangely enough, again a prehistory, now meaning the origins of historic time, the primeval and early history of humankind. For according to the research of prehistory at that time, pile-works in the Swiss lakes, crannogs in Ireland and Scotland, and elevated granaries in the canton of Valais were regarded as prehistoric relics.

The young LC appears *doubly sensitized* by prehistory, first through his own origins and second through the education of his generation. This motif became the subject of my search. It led me to my beloved Suisse-Romande, to La Chaux-de-Fonds, to Neuchâtel, to the three lakes of the Jura, to the Lake of Geneva, to Valais, and, of course, to Paris. My fear that I might become trapped in the collecting of folklore ebbed away as I increasingly became convinced that these particular places, this cultural region, characterized by its exceptionally clearly defined profile, is of paramount importance if one seeks to understand and appreciate that seemingly provincial figure marked by apparent big-city arrogance and showmanship and his seemingly merely provocative work. Understanding him and loving him for me involved severe contestation, great irritation, and partial outright rejection.

Actually, I had intended to follow up the pilotis motif all the way to the end of LC's work and life, to the lagoon of Venice. But after some time the material I discovered proliferated so much that I had to be satisfied with continuing to the motif's culmination. The culmination of my perspective, that is, of the view from the understructure up, I regard as the designs for the League of Nations project and the Villa Savoye. Had LC built the League of Nations project, an endless chain of building deteriorations would certainly have ensued. But such an extraordinary new whole would have come about that Geneva, its lake, the memory of Jean-Jacques Rousseau, and the self-articulation of modernism would all have undergone an irreversible change.

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I hope to have shown that LC, swept on as he was by his naivete and his whole capacity for hope, staked all on the League of Nations project. When his first prize was increasingly undermined and relativized through the endless intrigues of other prize winners backed by their home countries, he experienced this as the breakdown of his highest aspirations, in which he had justly felt confident (on objective comparison with the other entries).

What followed was a deep crisis over many years and a threatening inner turmoil that LC covered up, about which very little has been said. The more I am fascinated with this culmination, the more pressing seems to me the need to focus our attention freely (and that means, without the customary euphemisms required by the cult of genius) on the spasmodic coarsening in LC's large projects after the League of Nations debacle. What was advanced by Mary McLeod (1987) regarding Algiers, by Robert Fishman (1977) and Rémi Baudoui (1987) regarding Vichy, calls for further careful attempts at clarification. LC's dive into megalomania with the Plan Obus for Algiers, and his self-debasement at the court of Hitler's collaborator Pétain in Vichy and its consequences, namely, the "nearly total exclusion of LC from the rebuilding of France" (Paola Somma), have to be earnestly incorporated in the whole profile of his life's work.[1] A certain number of LC's admirers of old are likely to continue to despise such endeavors as cynical or laughable. But perhaps they might also remember that the master himself advised us not to leave wet laundry rotting in the cellar but to take it out in the sun to dry.

I would have liked to address in this book LC's crisis and discomposure after the Geneva culmination. But as it is, the length of the text and the number of illustrations it required do not allow a further expansion. I console myself with the hope that the present lively state of international research on LC will not omit these themes, and that I will be able to make contributions on these topics later. But at this point I return to the conclusions to be drawn from the material presented here. I should like to propose three such conclusions, the first applying to Jeanneret-LC as a child, the second to Jeanneret-LC as a young boy, and the third to LC as an adult artist.

First Conclusion: The Double Imprint of the Primary

LC's experiences in the Froebel kindergarten and in elementary school occurred precisely when the pedagogical phase of lake-dwelling fever was in full

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swing, and it brought about an effect in LC's early education that could justly be called the *quadrature of primary elements.* In the kindergarten LC first experienced a slowing of perception, that is, the very phenomenon he later came to call *recherche patiente* ("patient research"). Froebel's educational concept involved geometry, or more precisely stereometry. According to that, the primary volumetric figures from the sphere to the cone are explored from all possible angles by touch as well as by sight, extensively manipulated, and set in motion. In the lower and higher grades of elementary school the student's attention was focused on the early culture of lake dwellers on the nearby lakes of the Jura region. This educational process was thereby also focused on primary elements. But here the main concern was directed at the elementary survival strategies on the lake shore involving the possibility of living above water on pile constructions.

In two subsequent phases, in his most impressionable and receptive years, young LC thus encountered first the "beginnings" of geometry, the elementary figures of our spatial perception and our capacity for spatial organization, and immediately following these the "beginning" of early history (its having occurred in his own home region decisively deepened the whole effect). Quadrature of the primary: elementary geometry as demonstratively celebrated by Froebel among the tenderest young minds and for their shaping under the slogan "Come, let us live involved with our children," and primary tribal life strategies above water as celebrated by Desor, Troyon, Keller, and other public figures of that time as the primary event of early continental history.

Both early imprints stayed alive in the child's mind and are vividly present with disarming consistency in the mind of the old man. They are found until the moment when, in addition to other late commissions, he begins the design for the hospital on the lagoon of Venice, takes a vacation, drives to his hut (*cabane*) on the Mediterranean, and drowns while swimming. Thus we may say that LC's life's work consisted in mediating between *the rationally visualizable primary elements of geometry and the historically discoverable primary facts in archaeology and architecture.* The secret of his design seems to lie in his always *centering on two points* and describing as it were an elliptical course, which has *two focal points* and remains *constant* as the distances of each of its points to the two focal points always yield the same sum.

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Second Conclusion: The Formative Imprint of the Cultural Geography of the Suisse-Romande on the Young LC

Not too many other European regions are marked as deeply as the Suisse-Romande by certain cultural events that impress themselves on people's memory more strongly than wars, power struggles, and economic upheavals. This region is distinctly defined by cultural episodes, even if we concentrate only on the eighteenth and nineteenth centuries and disregard all other periods (figures 254, 255). Cultural awareness as we understand it refers not only to the acquisitions of the more educated classes. Any student in the Suisse-Romande who has passed the seventh and eighth school grades has been led to associate certain landscapes and places with certain public figures, with anecdotes about them, and with certain enduring institutions related to them.

Among the public figures of interest to us here is first of all the Genevois Jean-Jacques Rousseau, and then Heinrich Pestalozzi from Zurich, whose famous educational institute in Yverdon decisively influenced Froebel's development. Among the generally known institutions in the second half of the nineteenth century belong, according to my findings, the newly discovered lake-dwellers' sites clustering around the shores of the lakes of this same region.

In 1754, after many years abroad, Rousseau returned for four months to Geneva accompanied by his partner Thérèse Levasseur. During September he found enough time to sail a whole week on the Lake of Geneva from one end to the other, all the way from the *petit lac* over the *grand lac* to the *haut lac* and back. Two years later he started to write his epistolary novel (*Julie ou la nouvelle Héloïse*), which takes place almost entirely on the Lake of Geneva and in the canton of Valais. What is noteworthy is that throughout the novel Rousseau uses the real names of local towns and mountains. The love story between the noblewoman Julie d'Etange and her tutor Saint-Preux unrolls mainly in Clarens, located between Montreux and Vevey (spelled "Vevai" by Rousseau). Julie's lover first flees to Sion in the canton of Valais, then returns to the lake, but to its opposite shore, to Meillerie, "in order to at least look upon the view of the place which I do not dare to enter." Later he finds a lonely niche on the rocks above the steep mountain shore, and he borrows a telescope from the local minister "through which I saw or believed I saw your house; and ever since, I spend whole days in this asylum, so that I

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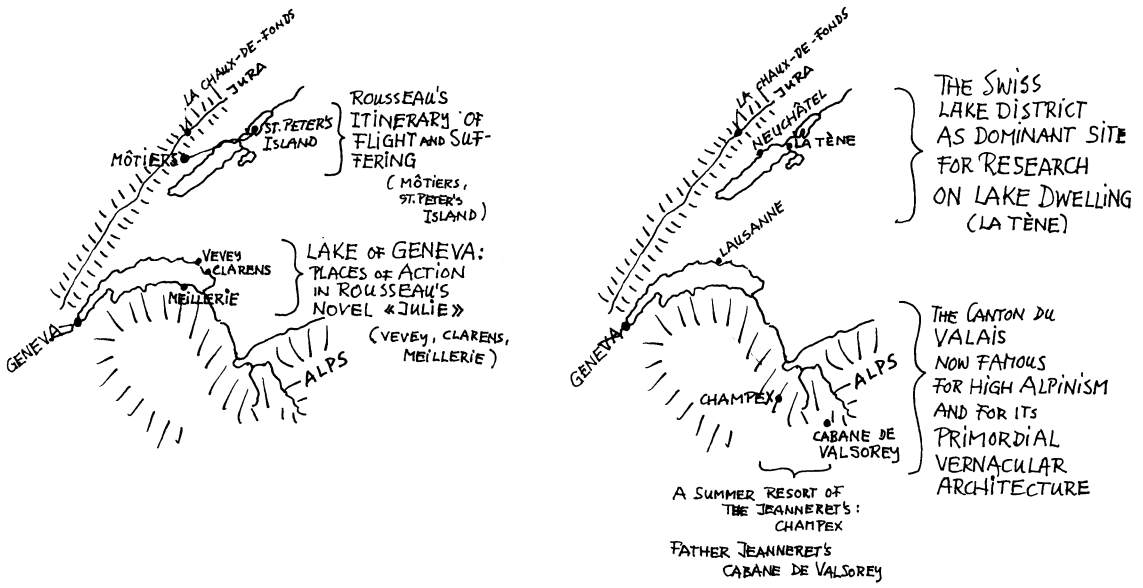

254
Important sites in the cultural history of the Suisse-Romande that strongly influenced the young LC: eighteenth-century aspects.

255
Cultural geography of the Suisse-Romande: nineteenth-century aspects.

might observe from afar the fateful walls that enclose the source of my life" (letter XXVI).

I mention this passage as an example of how carefully Rousseau handles the geography of that region. The tumultuous inner life of the two lovers is mirrored in a landscape capable indeed of reflecting all modes and tonalities of their feelings. This is the reason why the Lake of Geneva was highly ennobled with the publishing of this novel in 1761, and achieved a prominence unequaled by any other lake region before.

However, immediately after the huge success of *Julie* began the greatest crisis of Rousseau's life, and this critical phase from 1762 to 1765 he spent in the canton of Neuchâtel. Its direct cause, as mentioned, was the total ban against his novel *Emile* not only by the Paris parliament but also by the authorities of Geneva. Under Prussian rule at the time, the canton of Neuchâtel stressed its own tolerance and took in the refugee. This means that the sufferings and tribulations of the poet, who by now had become a martyr and

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showed symptoms of persecution mania, were enacted before the eyes of the Neuchâtelois, first in Môtiers and then on St. Peter's Island. These emotionally charged episodes impressed themselves deeply into the local memory. In other words, both the Lake of Geneva and the Lake Region of the Jura are marked by Rousseau, albeit in different ways.

All in all, Rousseau's influence on LC, which we attempted to delineate especially in parts II and III of this book, is by no means limited to the effects of his works being read, whether in LC's home, at school, or in Paris. LC's reading of Rousseau becomes a live experience because LC's own home region was intimately enmeshed in the author's life and sufferings. *Le passage du poête* into a *poête-martyr,* the transfiguration of the poet into a martyr, took place *right there,* at the very locus of LC's own life and early upbringing. Hence it is no exaggeration on my part to point out a Rousseauean foundation in the pyramid of LC's convictions. Undoubtedly, Patricia Sekler has every reason to refer to the considerable influence of Ruskin during LC's years of later study,[2] and Paul V. Turner may well prove that Henry Provensal and Edouard Schuré, and later Nietzsche and Ernest Renan, significantly affected LC's philosophical interests.[3] However, these subsequent layers of appropriation rest on the foundation that is formed decisively by Rousseau. And I feel justified in saying that they show a long-term effect only when they do not contradict Rousseau's main theses but are compatible with them.

Neuchâtel, the cantonal capital and rival of La Chaux-de-Fonds, retains its importance for the cultural geography of the nineteenth century, though now on archaeological grounds: it becomes, with Zurich, the center of Swiss lake-dwelling research. Scientists like Desor and painters like Bachelin live there, and Bachelin's friend, the painter Albert Anker, works in the neighboring village of Ins. Thus it is logical that Neuchâtel should be the site of the First Paleoethnological Congress in 1866, which subsequently becomes highly influential at the Exposition Universelle at Paris in 1867. La Chaux-de-Fonds, as the editorial quarters of the *Educateur* from 1890 to 1892, strongly influences public opinion during the height of the lake-dwelling enthusiasm. In Lausanne were active Frédéric Troyon and Viollet-le-Duc in his last years. Valais, which fascinates the newly developing fields of ethnology and the study of vernacular architecture, proves the favorite region of LC's father, who designs the huts of Valsorey and Oberaletsch for the

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local alpine club and often spends his family vacations in this mountain region, in Champex for instance.

In short, LC grows up at the fringe of a French-speaking region that however achieves an unusually high cultural profile in the eighteenth and nineteenth centuries. A richly molded landscape becomes the inspiring site of literature and of prehistoric research. This scenery seems to be able to mirror what deeply moves the soul. And it seems to hide relics from primeval times that reflect a freer and purer way of life than that of our period.

Third Conclusion: Why LC Knows for Certain What Modernism Is

In our attempt to undercut the cult of genius in our explanations, we searched for events that decidedly affected LC as a child, as a young boy, and as an adult, and led him to become what he was in the end: the most effective spokesman for modernism—what it is, what it might be, and what it ought to be.

The résumé of our search is simple and reads as follows:

- because in his earliest childhood he became intimate with the elements of geometry in a playful way (through Froebel);
- because soon after that he became enthralled with dwelling above water as the earliest kind of life in history (through the teachings of Desor and his followers among LC's teachers);
- because through his own acquaintance with Rousseau he realized that this original constellation was not entirely lost but could be found again;
- he therefore knows for certain that the architecture of modernism has to be geometrically pure and elevated above ground on pilotis.

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Notes

Part I "The Weight of Things"—Does It Count Longer Than the Name of Things?

1 Le Corbusier, *Dernières oeuvres,* ed. Willi Boesiger (Zurich, 1970), p. 168. The *Oeuvre complète,* 8 vols. (Zurich, 1991), of which this is volume VIII, is hereafter cited as *O.c.* with roman numeral for volume number.

2 LC, *Mise au point* (Paris, 1966), 9.

3 Charles Ferdinand Ramuz, *Journal,* cited in Maurice Zermatten, *C. F. Ramuz, Morceaux choisis* (Lausanne, 1967), 24.

4 See A. M. Vogt, "LC, Der zornerfüllte Abschied von La Chaux-de-Fonds 1917," in *Unsere Kunstdenkmäler,* no. 431 (Bern, 1992), 539–547.

5 LC, "Les 5 points," *O.c.,* I, 128–132. On the history of the writing of the "5 points," comp. Werner Oechslin, in J. Lucan, *LC, une encyclopèdie* (Paris, 1987), 92–94.

6 LC, "Les 5 points," 128.

7 *O.c.,* I, 132.

8 LC, *Une maison—un palais* (Paris, 1928), 54–74.

9 *O.c.,* I, 31.

10 Concept by Thomas Boga and Philippe Carrard, with collaboration of B. Hoesli and H. Ronner; 1st edition 1979; 2d, unchanged edition 1987.

11 See Vogt, "LC, Der zornerfüllte Abschied von La Chaux-de-Fonds," 543.

12 Ibid., 545.

13 *O.c.,* I, 61.

14 LC, *Précisions sur un état présent de l'architecture et de l'urbanisme* (Paris, 1930), 136.

15 *O.c.,* I, 68.

16 H. Allen Brooks, "L'évolution de la conception de l'espace au cours des années d'apprentissage," in *La ville et l'urbanisme après Le Corbusier* (La Chaux-de-Fonds, 1993), 14.

17 Giuliano Gresleri, *Le Corbusier, il viaggio in Toscana,* 1907, exhibition catalogue (Florence, Palazzo Pitti; Cataloghi Marsilio, Venice, 1987), 17.

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18 Ibid., 16. Gresleri reproduces exactly the errors of the draftsman, but here he alters the text to *j'appliquerait*—it reads (and makes sense as) *s'appliquerait.*

19 *O.c.,* I, 69.

20 Alfred Roth, "Der Wettbewerb, die Projektbearbeitung und LC's Kampf um sein preisgekröntes Projekt," in *Le Corbusier und Pierre Jeanneret: Das Wettbewerbsprojekt für den Völkerbundpalast in Genf 1927,* Institut für Geschichte und Theorie der Architektur, ETH, ed. Werner Oechslin (Zurich, 1988), 20–28.

21 Ibid., 20.

22 Giuliano Gresleri, *Le Corbusier viaggio in Oriente* (Venice and Paris, 1984), 158. German translation *LC, Reise nach dem Orient,* trans. Turgut Vogt (Zurich, 1991).

23 Eyup Asim Kümürcüoglu, *Das alt-türkische Wohnhaus,* Schriften des Deutschen Archaeologischen Instituts in Istanbul (Wiesbaden, 1966).

24 LC, *Le voyage d'Orient* (Paris, 1966), 67.

25 Ibid.

26 Ibid., 68.

27 See A. M. Vogt, "Die 'verkehrte' Grand Tour des Charles Edouard Jeanneret," *Bauwelt,* no. 38/39 (1987), Le Corbusier special issue, 1430–1439. For the quotation from Claude Farrère, see especially Gresleri, *LC viaggio in Oriente,* 41, 49.

28 LC, *Voyage d'Orient,* 120.

29 Vogt, "Die 'verkehrte' Grand Tour," with several longer quotations from Klipstein's diary.

30 Auguste Klipstein, unpublished ms. on the grand tour with LC, 368.

31 Sedad H. Eldem, *Köskler ve Kasírlar; Turkish Kiosks and Pavilions,* Vol. II (Academy of Arts, Istanbul, 1973), 19, 21.

32 The Köprülü-Yali is to be found in the newly published Inventory of Monuments on the shore of Bosporus to be preserved (Bogazici Sahil-haneleri, Istanbul 1993–1994, four vols., ed. Orhan Erdenen) under Monument No. 83, vol. I, 136–144.

33 Eldem, *Köskler,* vol. II, 50.

34 In Orhan Erdenen's inventory of monuments on the Bosporus the white *yali* appears as No. 194 (vol. II, 359 ff); the red *yali* as No. 155 (vol. II, 288 ff).

35 Kümürcüoglu, *Das alt-türkische Wohnhaus,* 5.

36 Síbel Bozdogan, Suha Özkan, and Engin Yenal, *Sedad Eldem, Architect in Turkey* (Singapore and New York, 1987), 175.

37 On the building history of Bebek Köskü see Eldem, *Köskler,* vol. II, 306 ff.

38 Ibid.

39 See A. M. Vogt, *Boullées Newton-Denkmal, Sakralbau und Kugelidee* (Basel, 1969).

40 A. M. Vogt, "Revolutions-Architektur und Naziklassizismus," in the issue of *Argo* in honor of Kurt Badt (Cologne, 1971).

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41 On the history of Melling's *Voyage pittoresque* and its publication history, see the Musée Carnavalet's exhibition catalogue *Melling, artiste-voyageur,* ed. Cornelis Boschma and Jacques Perot (Paris, 1991).

42 Ibid., 15 ff.

43 Ibid.

44 See A. M. Vogt, "Avantgarde als Kindertraum, Die Architektur des Gerrit Thomas Rietvelt," Literatur und Kunst section of *Neue Zürcher Zeitung,* no. 205, 4 September 1993.

45 Kümürcüoglu, *Das alt-türkische Wohnhaus,* 39.

Part II A Hymn in Praise of Pilotis—and in Praise of Jean-Jacques Rousseau

1 LC, *Précisions sur un état présent de l'architecture et de l'urbanisme* (Paris, 1930), 208.

2 Heinrich Wölfflin, *Gedanken zur Kunstgeschichte* (Basel, 1940), preface, vii.

3 See A. M. Vogt, "Das 'interesselose' Wohlgefallen am Fach Kunstgeschichte," lecture at the 125th Anniversary Colloquium of the Institut für Kunstgeschichte, Universität Stuttgart, 1991, published in *Reden und Aufsätze 41,* Festschrift for the 60th birthday of Herwarth Röttgen, ed. Johannes Zahlten (Stuttgart, 1991), 9–12.

4 Ibid., 10.

5 LC, *Précisions,* 37.

6 Ibid., 38.

7 Ibid.

8 Ibid.

9 Ibid., 40.

10 Ibid.

11 Ibid., 42.

12 Ibid., 44.

13 Ibid., 48.

14 Ibid., 44.

15 Ibid., 40.

16 Ibid., 45.

17 Ibid.

18 Ibid., 48 ff.

19 LC, *Une maison—un palais* (Paris, 1928), 26.

20 Ibid., 94.

21 LC, *Précisions,* 48.

22 Ibid., 49.

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23 Ibid.

24 LC, *Une maison—un palais,* 156.

25 Ibid., 94.

26 Ibid.

27 Ibid., 156.

28 LC, *Précisions,* 61.

29 LC, *Vers une architecture* (Paris, 1923), 45.

30 LC, *O.c.,* I, 23.

31 For details on Perret's endeavors for and the contradictions with the Ville-Tours see Francesco Passanti, "Wolkenkratzer für die Ville contemporaine," in the exhibition catalogue *L'Esprit Nouveau,* ed. Stanislaus von Moos (Museum für Gestaltung, Zurich, 1987), and also see Pierre Saddy's article on Perret in *LC—une encyclopédie* (Paris, 1987), 300–303.

32 LC, *O.c.,* I, 23.

33 See A. M. Vogt, "LC, Der zornerfüllte Abschied von La Chaux-de-Fonds 1917," in *Unsere Kunstdenkmäler,* no. 431 (Bern, 1992), 539–547.

34 LC, *O.c.,* I, 20.

35 Eleanor Gregh describes in detail the story of the "Dom-ino idea" in *Oppositions,* no. 15/16 (1979), 61 ff; see also Joyce Lohman's article in *Architectural Review,* October 1976, 229 ff.

36 For the quotations and their origin, see Saddy in *LC, une encyclopédie,* 301, under the heading "Auguste Perret."

37 Letter to Ritter, November 2, 1915, Bibliothèque de la Ville de La Chaux-de-Fonds.

38 Entry in LC's father's diary, November 6, 1915, Bibliothèque de la Ville de La Chaux-de-Fonds.

39 Ibid., December 2, 1915.

40 Ibid., ms. 111 and 112.

41 Ibid. (1916).

42 The letter is not dated; Eleanor Gregh (*Oppositions,* 87 footnote 132) dates it late 1913. Even if this is true, it remains even more characteristic for the years 1916–1918.

43 Detailed account in Gregh, ibid., 70 ff.

44 Ibid., 82.

45 Jacques Gubler, "L'Oeuvre de jeunesse de Ch. Ed. Jeanneret," in *La Chaux-de-Fonds,* INSA (Inventory of the Newer Swiss Architecture) (Bern, 1982), vol. 3, 129.

46 See Mary Patricia May Sekler, *The Early Drawings of Charles-Edouard Jeanneret (Le Corbusier) 1902–1908* (New York, 1977), 11.

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47 Giuliano Gresleri, *Le Corbusier viaggio in Oriente* (Venice and Paris, 1984); German translation *LC, Reise nach dem Orient,* trans. Turgut Vogt (Zurich, 1991), 39.

48 *O.c.,* I, 8 (preface).

49 Ibid.

50 Ibid.

51 Diary of LC's father.

52 LC, *Précisions,* 205.

53 Ibid., 207.

54 Mogens Krustrup, in *Porte Email; LC, Palais de l'Assemblée de Chandigarh* (Copenhagen, 1991).

55 LC, *Précisions,* 50.

56 Ibid.

57 Ibid., 50 f.

58 Ibid., 50.

59 Richard Quincerot in *LC und Pierre Jeanneret: Das Wettbewerbsprojekt für den Völkerbundpalast in Genf 1927,* Institut für Geschichte und Theorie der Architektur, ETH, ed. Werner Oechslin (Zurich, 1988), 59.

60 Patrick Devanthéry and Inès Lamunière in ibid., 74 ff.

61 Jean-Jacques Rousseau, *Schriften zur Kulturkritik,* the two discourses of 1750 and 1755, introduced and translated by Kurt Weigand (Hamburg, 1978), vi, xxiii.

62 Second letter of Jean-Jacques Rousseau to the Count de Malesherbes.

63 Kurt Weigand gives a good survey of the main themes of recent Rousseau research in his introduction to Rousseau, *Schriften zur Kulturkritik,* esp. viii ff and xvii ff.

64 Jean Starobinski, *J. J. Rousseau, la transparence et l'obstacle* (Paris, 1971), 10.

65 Quoted from Weigand's introduction to Rousseau, *Schriften zur Kulturkritik,* xi.

66 Ibid., xxiii.

67 Ibid., xxii, reference to Brockerhoff.

68 Jean-Jacques Rousseau, *Les confessions,* ed. Bernard Gagnebin and Marcel Raymond (Paris, 1959/1979), vol. 2, 136 f.

69 Giambattista Vico (1668–1744) outlined a dialectical, cyclical model of the history of culture in his *New Science,* which anticipates many later insights. In his book *Forest, the Shadow of Civilization* (Chicago, 1992), Robert Pogue Harrison takes Vico's sentence quoted here as his motto and compares Vico's and Rousseau's relation to the forest.

70 Jean-Jacques Rousseau, *The First and Second Discourses,* ed. Roger D. Masters, trans. Roger D. and Judith R. Masters (New York, 1964), 141 f (translation modified). For the French text, cf. Rousseau, *Oeuvres complètes,* ed. Bernard Gagnebin and Marcel Raymond (Paris, 1959 ff.), vol. 3.

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71 Ibid., 142 (translation modified).
72 Ibid., 143 (translation modified).
73 Ibid., 145 f (translation modified).
74 Ibid., 149 f (translation modified).
75 Ibid., 151 (translation modified).

Part III The Fisherman's Hut and the Huts of the *Crannoges*

1 On *transparence,* compare Jean Starobinski, *J. J. Rousseau, la transparence et l'obstacle* (Paris, 1971).
2 LC, *Une maison—un palais* (Paris, 1928), 48.
3 Ibid.
4 Ibid.
5 Ibid.
6 Ibid., 50.
7 Ibid.
8 Ibid.
9 Ibid., 52.
10 Ibid.
11 An important contribution concerning Le Corbusier's theory and praxis of the *promenade architectural* is to be found in Elisabeth Blum, *Le Corbusier's Wege. Wie das Zauberwerk in Gang gesetzt wird,* Bauwelt Fundamente 73 (Wiesbaden, 1988), esp. 17 ff.
12 Jean-Jacques Rousseau, *Rêverie du promeneur solitaire* (Paris, 1977), Cinquième Promenade.
13 *LC und Pierre Jeanneret: Das Wettbewerbsprojekt für den Völkerbundpalast in Genf 1927,* Institut für Geschichte und Theorie der Architektur, ETH, ed. Werner Oechslin (Zurich, 1988), 4, bottom left.
14 LC, *Une maison—un palais,* 92 ff.
15 Ibid., 150.
16 Ibid., 152.
17 Blum, *Le Corbusier's Wege,* 33.
18 Ibid., 32, my emphasis.
19 The original photograph (Fondation Le Corbusier, Paris, 23.192) is illustrated in the contribution by Devanthéry and Lamunière in *LC und Jeanneret: Das Wettbewerbsprojekt für den Völkerbundpalast,* 74; for the photomontage, see LC, *Une maison—un palais,* 171.

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20 The archaeological work or source LC used for this drawing has not yet been found either in La Chaux-de-Fonds or in Paris.

21 The reference to Behne's small book I owe to Jos Bosman, who in *LC und Jeanneret: Das Wettbewerbsprojekt für den Völkerbundpalast,* 142 f, includes the three illustrations from Behne that I use and connects them briefly with the fisherman's hut of Arcachon. André Lurçat (1894–1970) made the same parallel in his book *Architecture* of 1929. In the chapter "Les éléments nouveaux: les pilotis" (127) he spoke of the *Cités lacustres* of prehistory and of their pilotis in water.

22 Heinrich Wölfflin, *Die Kunst Albrecht Dürers* (Munich, 1905, rpt. 1943), 253.

23 LC, *Une maison—un palais,* 151.

24 LC, *L'art décoratif d'aujourd'hui* (Paris, 1925), final chapter, "Confession."

25 Ibid., 193.

26 Ibid., 194.

27 Ibid., 195.

28 Ibid., 197 f.

29 Ibid., 200.

30 Ibid., 198.

31 LC, *Une maison—un palais,* 38.

32 Ibid.

33 Ibid.

34 Ibid., 46.

35 Ibid.

36 LC, *Vers une architecture* (Paris, 1923), xxv. LC writes the word "standard," taken over from English, consistently as *standart,* possibly attempting to dispel the suspicion that he is an Anglophile.

37 Ibid.

38 Ibid., 53.

39 Ibid.

40 Ibid., 55.

41 LC, *Une maison—un palais,* 43.

42 Ibid., 45.

43 In the first volume of the new Propyläen-Kunstgeschichte—Karl Schefold, ed., *Die Griechen und ihre Nachbarn* (Berlin, 1985)—Heinz Luschey contributes the chapter "Die Kunst Irans zur Zeit der Achaimeniden, Alexanders des Grossen und der Seleukiden" (292–301). The terms, dates, and reconstructions used here are based on Luschey's article and his documentation in the commentary of the illustrations.

44 Ibid., 298.

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45 Ibid.
46 LC, *Une maison—un palais,* 38.
47 Ibid., 40.
48 Frédéric Troyon, *Habitations lacustres* (Lausanne, 1860), v.
49 Ibid.
50 Ibid., 87.
51 Ibid., vii.
52 Ferdinand Keller, "Zweiter Bericht," *Mittheilungen der Antiquarischen Gesellschaft in Zürich* (1858), 130 f.
53 Ibid., 132.
54 Ibid.
55 Ibid.
56 Troyon, *Habitations,* plate II.
57 Sir Wm. R. W. Wilde, *Catalogue of the Antiquities in the Museum of the Royal Irish Academy* (Dublin: M. H. Gill, 1857), 233.
58 Ibid., 235.
59 Ibid., 237.
60 Ibid., 235.
61 Ibid.
62 Wolfgang Herrmann, *Laugier and Eighteenth Century French Theory* (London: A. Zwemmer, 1962); Joseph Rykwert, *On Adam's House in Paradise: The Idea of the Primitive Hut in Architectural History* (New York: Museum of Modern Art, 1972). On the further development of research on the primitive hut, Georg Germann gives a concise, well-informed bibliographical outline in his article "Höhle und Hütte," in *Jagen und Sammeln: Festschrift für Hans-Georg Bandi, zum 65. Geburtstag,* Yearbook of the Bernische Historische Museum (Bern, 1985), 121 ff.
63 Paul Venable Turner, *The Education of LC* (New York, 1977), 239 ff.
64 Troyon, *Habitations,* 266 f; my emphasis.

Part IV The Swiss Lake-Dwelling Fever

1 *La patrie, lectures illustrées du degré moyen des ecoles primaires par C. W. Jeanneret* (La Chaux-de-Fonds, 1890).
2 Ibid., 373.
3 Ferdinand Keller, "Die keltischen Pfahlbauten in den Schweizerseen, Erster Bericht," *Mittheilungen der Antiquarischen Gesellschaft in Zürich* (1854).
4 Ibid., 80.
5 Ibid.

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6 Ibid., 81.

7 Jules S. C. Dumont d'Urville, *Voyage de la corvette Astrolabe exécuté par ordre du Roi pendant les années 1826–1827–1828–1829. Histoire du voyage,* 5 vols. (Paris, 1830–1833).

8 H. G. Bandi, "Pfahlbaubilder und Pfahlbaumodelle des 19. Jahrhunderts," *Archäologie der Schweiz,* no. 2 (1979), 30.

9 On the individual phase of this dispute see Josef Speck, "Zur Geschichte der Pfahlbauforschung," in *Die ersten Bauern,* Swiss National Museum (Zurich, 1990), vol. 1, 9 ff.

10 Keller, "Die keltischen Pfahlbauten in den Schweizerseen," 84.

11 J. Dumont d'Urville, *Voyage pittoresque autour du monde,* 2 vols. (Paris, 1834–1835), vol. 2, 183. Comp. Christian Kaufmann, "Völkerkundliche Anregungen zur Interpretation der Pfahlbaufunde," *Archäologie der Schweiz,* no. 2 (1979), 13.

12 See Keller, "Die keltischen Pfahlbauten in den Schweizerseen," 81.

13 Ibid., 81, 82.

14 Kaufmann, "Völkerkundliche Anregungen," 17. The following excerpts are also drawn from this article.

15 Speck, "Zur Geschichte der Pfahlbauforschung," 18.

16 Walter-Ulrich Guyan, in *Die erste Bauern,* vol. 1, 216.

17 Ibid.

18 Ibid.

19 Werner Stöckli, in *Archäologie der Schweiz,* no. 2 (1979), 51.

20 Bandi, "Pfahlbaubilder und Pfahlbaumodelle," 28 f.

21 See Speck, "Zur Geschichte der Pfahlbauforschung," 18, and Hanni Schwab, in *Die erste Bauern,* vol. 1, 11.

22 March 17, 1854, *Zürcher Freitags-Zeitung.* See Speck, "Zur Geschichte der Pfahlbauforschung," 18.

23 Keller, "Die keltischen Pfahlbauten in den Schweizerseen," 86–87.

24 Ibid., 99.

25 Frédéric Troyon, in Keller, "Die keltischen Pfahlbauten in den Schweizerseen," 99.

26 Edouard Desor, *Les palafittes* (Paris, 1865), 6.

27 Werner Bourquin, "Oberst Friedrich Schwab und die schweizerische Pfahlbauforschung," in *Bielerseebuch* (Bienne, 1954), 21.

28 John Edward Lee, FSA, FGS, *The Lake Dwellings of Switzerland and Other Parts of Europe* (London, 1866).

29 Ferdinand Keller, "Zweiter Bericht," *Mittheilungen der Antiquarischen Gesellschaft in Zürich* (1858), 262.

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30 Desor, *Les palafittes,* vi.

31 Ibid., 2–4.

32 Gottfried Semper, *Kleine Schriften* (Berlin, 1884), 260–263. Comp. Adolf Max Vogt, "Gottfried Semper und Joseph Paxton," in *Gottfried Semper und die Mitte des 19. Jahrhunderts* (Basel, 1976), esp. 189 f.

33 Commentary on Goethe's essay "Principes de philosophie zoologique," in *Goethe's Werke,* Hamburg edition, vol. 13 (1955), 589 f.

34 Dorothea Kuhn in ibid., 590 (my emphasis).

35 *Goethe's Werke,* vol. 13, 232 f (my emphasis).

36 Ibid., 250.

37 Semper, *Kleine Schriften,* 260.

38 See Vogt, "Gottfried Semper und Joseph Paxton," 193.

39 Georges Cuvier, *Das Thierreich,* trans. F. S. Voigt (Leipzig, 1831), vol. 1, 46.

40 See Vogt, "Gottfried Semper und Joseph Paxton," 193.

41 *Goethe's Werke,* vol. 13, 227 (my emphasis).

42 See A. M. Vogt, *Das Baumodell als Vorbild und Nachgebilde, Korkmodelle im Architekturmuseum Basel* (Basel, 1988).

43 Johann Wolfgang von Goethe, *Italienische Reise* (Frankfurt, 1976), entry of November 1, 1786.

44 On Jacques Gondouin, see A. M. Vogt, *Boullées Newton-Denkmal, Sakralbau und Kugelidee* (Basel, 1969), esp. 152 and 332.

45 Quoted from S. Giedion, *Space, Time and Architecture,* 5th ed. (Cambridge, Mass., 1967), 261.

46 The Guillaume Ritter dossier (set in order by William Ritter) is in the Bibliothèque de la Ville de La Chaux-de-Fonds, and it informs us about his work as an engineer, friend of the arts, and art collector.

47 *Actes du Premier Congrès Paléoethnologique à Neuchâtel, 24–26 Août 1866, Société Hélvétique des Sciences Naturelles* (Neuchâtel, 1866) 158: "Curieux instrument en bronze, Stat. lacustre de Chevroux; Chronomètre pour les palafittes; Déformation pathologique d'un crâne."

48 Mortillet in ibid., 155.

49 Carl Vogt, *Vorlesung über den Menschen, seine Stellung in der Schöpfung und in der Geschichte der Erde* (Giessen, 1864), 260.

50 Elisabeth Blum, *Le Corbusiers Wege. Wie das Zauberwerk in Gang gesetzt wird* (Wiesbaden, 1988), makes the *promenade architecturale* into the main leitmotif of her research.

51 *Catalogue général, Section Histoire du Travail,* Exposition Universelle de 1867, 281.

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53 Jean-Jacques Rousseau, *Les confessions,* ed. Bernard Gagnebin and Marcel Raymond (Paris, 1959/1979), vol. 2, 136.

54 See the city chronicle: *La Chaux-de-Fonds 1794–1894,* and Cathy Gfeller, "Les Débuts de l'Ecole d'Art de La Chaux-de-Fonds," *Nouvelle Revue Neuchâteloise,* no. 34 (Summer 1992).

55 Albert Anker, letter to E. Davinet, May 6, 1899, cited by Sandor Kuthy and Hans A. Lüthy, *Albert Anker* (Zurich, n.d.), 77.

56 Data from Michel Egloff in the catalogue of Hans-Georg Bandi and Karl Zimmermann, *Pfahlbau-Romantik des 19. Jahrhunderts* (Zurich, 1980), 16.

Part V LC's Early School Years and Their Dreams of Primary Origins

1 LC's father's diary, LC archive in La Chaux-de-Fonds, entry of Augut 31, 1891.

2 Marc Solitaire, "LC et l'urbain: la rectification du damier froebelien," in *La ville et l'urbanisme après LC* (le Colloque de 1987, à La Chaux-de-Fonds), ed. E. Tripet and I. A. Humair (La Chaux-de-Fonds, 1993), 93–117.

3 Helmut Heiland, *Friedrich Froebel* (Reinbek bei Hamburg, 1982), 83.

4 *Froebels Theorie des Spiels,* 3 vols., ed. Elisabeth Blochmann et al. (Weinheim, 1962–1963), vol. 1, 15, and vol. 2, 9.

5 Heiland, *Froebel,* 94 ff, 135.

6 Erika Hoffmann, "Froebels Beitrag zur Volksschulerziehung," *Blätter des Pestalozzi-Froebel-Verbands* (Heidelberg, September/October 1968), no. 5, 133.

7 Solitaire, "LC et l'urbain," 99 f, 102, 104.

8 Ibid., 102.

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10 Heiland, *Froebel,* 33.

11 See A. M. Vogt, *Boullées Newton-Denkmal* (Basel, 1969), 18, 211, 317, 323, 375.

12 "As is well known, at the Seventh Anthropological Congress in Stockholm in 1872 it was decreed that the second Bronze Age is to be called the La Têne period after the La Têne site on the Lake of Neuchâtel." Werner Bourquin, "Oberst Friedrich Schwab und die Schweizerische Pfahlbauforschung," in *Bielerseebuch des Vereins Bielerseeschutz* (Bienne, 1854), 20.

13 Christin Osterwalder-Maier, "Schüler-Robinsonade im Pfahlbau: Urgeschichte im Schulunterricht," in *Festschrift für Hans R. Stampfli,* ed. J. Schibler (Basel, 1990), 175.

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14 C. W. Jeanneret, *Premier livre de lecture* (La Chaux-de-Fonds, 1890), 213.

15 Ibid.

16 Ibid., 214.

17 C. W. Jeanneret, *La patrie, lectures illustrées du degré moyen des écoles primaires* (La Chaux-de-Fonds, 1890), 373–375.

18 Karl Zimmermann, "Pfahlbauromantik in Baundesrathaus. Der Ankauf der Pfahlbausammlung von Dr. Victor Gross durch die Eidgenossenschaft im Jahre 1884 und die Frage der Gründung eines Schweizerischen National- und Landesmuseums," *Berner Zeitschrift für Geschichte und Heimatkunde* 49 (1987), no. 3.

19 For Jacques Gubler's important contributions on the topic of the economic infrastructure of LC's hometown, see *Revue neuchâteloise,* no. 23 (1981); "La Ville de La Chaux-de-Fonds," *Inventaire Suisse d'Architecture* (Bern: Gesellschaft für Schweizerische Kunstgeschichte, 1982), vol. 3, 127–217; and the articles "From Feeling to Reason: Jeanneret and Regionalism" and "In Time with the Swiss Watchmakers," in *LC: Early Works by Charles-Edouard Jeanneret-Gris,* with contributions by Geoffrey Baker and Jacques Gubler (London, 1987).

20 Gubler, "La Ville de La Chaux-de-Fonds," 136.

21 Gubler, in *LC: Early Works,* 121.

22 Karl Marx, *Das Kapital,* vol. 1, chapter 12, section 4, in *Marx-Engels-Werke,* vol. 23 (Berlin, 1972), 363, footnote 32.

23 For establishing exact dates in the elder Jeanneret's professional difficulties I am indebted to Mme. Françoise Frey, head of the LC archive in La Chaux-de-Fonds.

24 Marx, *Das Kapital,* vol. 1, 362 ff.

25 "To think with one's hands" I derive from the book title *Penser avec les mains,* published in 1936 by the important French Swiss essayist Denis de Rougemont (born Neuchâtel, 1906; died Geneva, 1985).

26 *L'Educateur; Organe de la Société pédagogique de la Suisse romande* 26, no. 4 (February 15, 1890), 51.

27 Ibid., 52.

28 Quoted from W. Zimmermann, *Evolution, die Geschichte ihrer Probleme und Erkenntnisse* (Freiburg, 1953), 513.

29 See Paul Venable Turner, *The Education of LC* (New York, 1977), 235.

30 Osterwalder-Maier, "Schüler-Robinsonade im Pfahlbau," 180.

31 LC archive, La Chaux-de-Fonds.

32 Besides the family vacations in Champex in August 1902, two further vacations in Valais are noted in the diary of LC's father: in July 1905 in Prazlong (Val d'Hérémence) and in August 1907 in Gruben (Turtmanntal). I thank Mme. Françoise Frey for rechecking these data.

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33 Edouard Wasserfallen, memorial notice for E. Jeanneret-Perret, in the commemorative volume, "1887–1937," bulletin no. 43 of the Club Alpine Suisse; copy in the LC archive in La Chaux-de-Fonds.

34 Edouard Jeanneret-Perret, *Mes vacances 1887–1892,* 24. LC archive, La Chaux-de-Fonds.

35 Ibid., 2.

36 See Pierre A. Frey, ed., *E. Viollet-le-Duc et le Massif du Mont-Blanc, 1868–1879,* with catalogue for the corresponding exhibition (Lausanne: Musée historique de l'Ancien Evêché, 1988). Important for our theme is Jacques Gubler's article "Architecture et géographie," 91, 102 ff.

37 Eugène-Emmanuel Viollet-le-Duc, *Histoire de l'habitation humaine* (Paris: J. Hetzel, 1875), 361.

38 The drawing is reproduced in Hans-Georg Bandi and Karl Zimmermann, *Pfahlbau-Romantik des 19. Jahrhunderts* (Zurich, 1980), cat. no. 14.

39 Walter Ulrich Guyan in *Die erste Bauern* (Zurich, 1990), vol. 1, 216.

40 The information about the wooden understructure of Venice (figure 242b) I owe to André Corboz.

41 Under the title "H VEN LC," Wolfram Fuchs and Robert Wischer, of the Institute for Hospital Building of the Technische Universität Berlin, put together an exhibition on the Cannaregio project, accompanied by a notable catalogue (Berlin: Reimer-Verlag, 1985). In the appendix, the most important passages of Dr. Polichetti's 1966 lecture are available in a German translation (95 ff).

Part VI Why LC "Knows" What Modernism Is

1 In 1987 La Chaux-de-Fonds celebrated the centennial of LC's birth with a colloquium whose contributions, regrettably, were only published in 1993. Among them was Paola Somma's in *La ville et l'urbanisme après LC,* ed. E. Tripet and J. A. Humair (La Chaux-de-Fonds, 1993). My review of this book in the *Neuen Zürcher Zeitung,* no. 262 (November 10, 1993, under the title "Zwiespalt zwischen Einzelbau und Stadtutopie" (Conflict between Individual Buildings and City Utopia), is quoted here in part.

2 See Mary Patricia May Sekler, *The Early Drawings of Ch. Ed. Jeanneret (Le Corbusier) 1902–1908* (New York, 1977); "LC, Ruskin, the Tree and the Open Hand," in *The Open Hand: Essays on LC,* ed. Russell Walden (Cambridge, Mass.: MIT Press, 1977).

3 Paul Venable Turner, *The Education of LC* (New York, 1977).

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Figures 4, 83, 85–88, 96, 110–113, 116: Le Corbusier, *Précisions sur un état présent de l'architecture et de l'urbanisme* (Paris: G. Crès, 1930).

Figures 5–8, 89, 90, 93, 120, 121, 126, 127, 135, 137, 145–149, 163: Le Corbusier, *Une maison—un palais* (Paris: G. Crès, 1928).

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Figure 20: Giuliano Gresleri, *Le Corbusier, il viaggio in Toscana,* exhibition catalogue (Florence: Palazzo Pitti; Venice: Cataloghi Marsilio, 1987).

Figures 23, 24: Jean Alazard, *Le Corbusier* (Florence: Electa, 1951).

Figures 25–29, 45 right, 46 right: *Le Corbusier et Pierre Jeanneret (1922–1940, 1951–1967)—Projets réalisés,* posters (Zurich: Institut für Geschichte und Theorie der Architektur, ETH, 1979).

Figures 30, 33–35, 39–42, 44, 46 left, 61: Giuliano Gresleri, *Le Corbusier, viaggio in Oriente* (Venice: Marsilio Editori; Paris: Fondation Le Corbusier, 1984).

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Figures 48, 49, 66, 71, 139: Anton Ignaz Melling, *Voyage pittoresque de Constantinople et des rives du Bosphore* (Paris: chez les éditeurs [Treuttel and Wurtz], 1819).

Figure 50: Le Corbusier, *Voyage d'Orient: Sketchbooks,* facsimile edition, ed. Giuliano Gresleri (New York: Rizzoli, 1988).

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Figures 51–54, 58, 64, 67, 68, 73: Sedad H. Eldem, *Köskler ve Kasirlar: A Survey of Turkish Kiosks and Pavilions,* vol. 2 (Istanbul: Academy of Arts, 1973).

Figures 62, 63, 129, 150, 164, 165, 212, 227–229, 231, 254, 255: photos and sketches by the author.

Figures 69, 70: A. M. Vogt, "Revolutions-Architektur und Naziklassizismus," *Argo,* issue in honor of Kurt Badt (Cologne, 1971).

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Figure 74: Auguste Boppe, *Peintres du Bosphore au dix-huitième siècle* (Paris: Hachette, 1911).

Figures 82, 168, 200, 222, 223, 226, 232, 233–238: La Chaux-de-Fonds, Bibliothèque de la Ville, Le Corbusier Archive.

Figure 84: Graphische Sammlung der ETH, Zurich.

Figures 94, 95: Bruno Reichlin, "Le Corbusier, la petite maison à Corseaux."

Figures 97, 128, 151, 152, 157: Le Corbusier, *Vers une architecture* (Paris: G. Crès, 1923).

Figure 98: Francesco Passanti, "Le Corbusier, Wolkenkratzer für die Ville contemporaine," in *L'Esprit Nouveau,* ed. Stanislaus von Moos, exhibition catalogue (Zurich: Museum für Gestaltung, 1987).

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Figures 141–144: Adolf Behne, *Eine Stunde Architektur* (Stuttgart: Akademischer Verlag Dr. Fritz Wedekinde, 1928).

Figures 153–156: Karl Schefold, ed., *Die Griechen und ihre Nachbarn* (Berlin: Propyläen Verlag, 1985).

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Figure 162: Wolfgang Herrmann, *Laugier and Eighteenth Century French Theory* (London: A. Zwemmer, 1962).

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Figures 196, 220: A. M. Vogt, *Boullées Newton-Denkmal; Sakralbau und Kugelidee* (Basel and Stuttgart: Birkhäuser, 1969).

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Figure 203: Christie's, Monaco, auction catalogue of June 20, 1992.

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Figure 217: Friedrich Froebel, *Theorie des Spiels.*

Figures 218, 219: Helmut Heiland, ed., *Friedrich Froebel in Selbstzeugnissen und Bilddokumenten* (Reinbek bei Hamburg: Rowohlt, 1982).

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